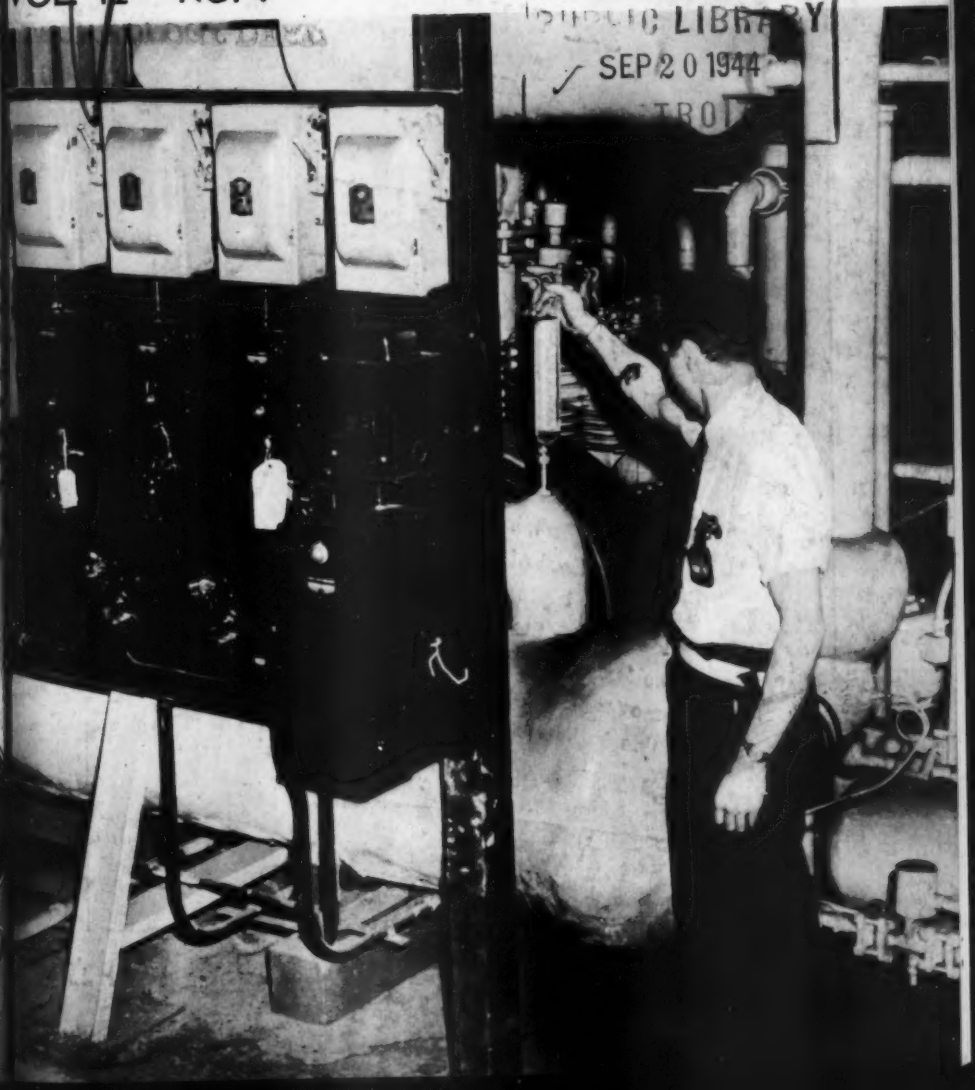
Refrigeration Service Engineer

VOL. 12 NO. 9 ★ ★ ★ SEPTEMBER 1944



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"DL" Products Help Make The Difference

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"DL" Refrigeration Controls and "Detroit" Expansion Valves help preserve food supply, and furnish cool conditioned air in the hot, steamy jungle of the South Pacific, on the seven seas, in fact, wherever the United Nations are fighting. Other "DL" controls regulate temperature of chemicals in photo processes, refrigerate a variety of biological products—do many tasks to help give our fighting forces the edge.

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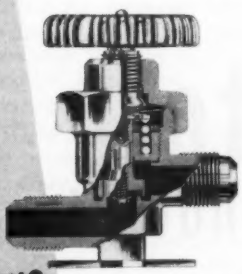

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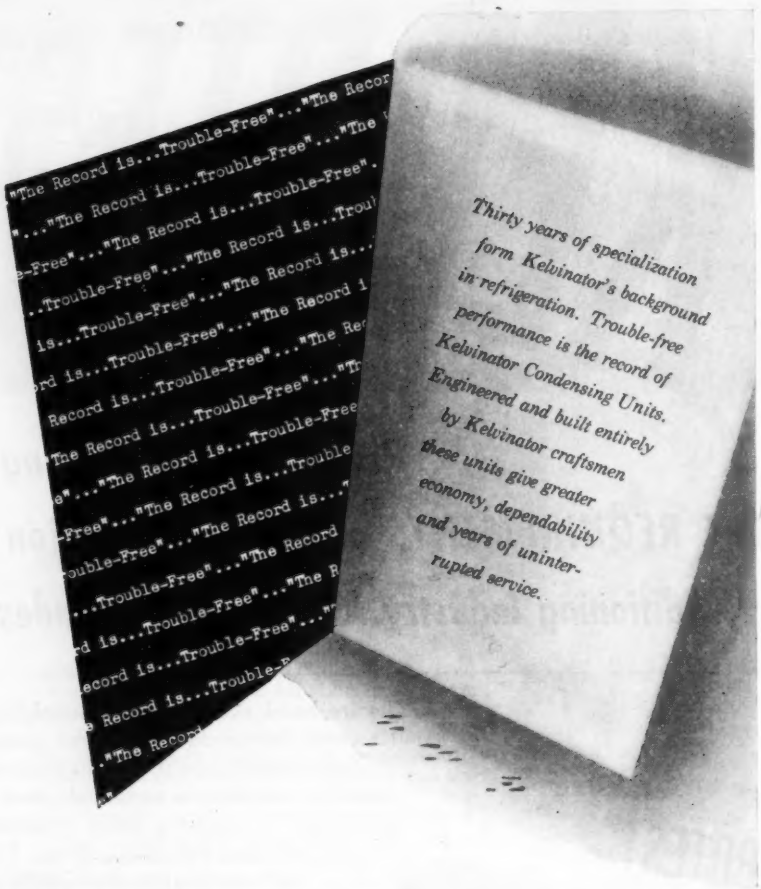

Kelvinator

condensing units

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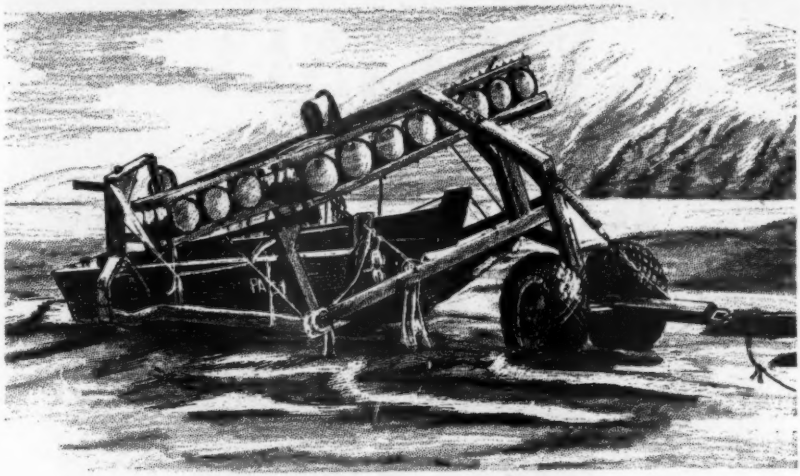

GEEHEEBEE AND TEEZEE!

The public has heard little of the Geeheebee, but the men of the Service at the invasion water-fronts know that it is the Navy's big mobile dry-dock, used particularly after amphibious operations. Rows of oil drums enable the Geeheebee to float on water. With chain pulleys it picks up damaged landing boats or barges and pulls them in to dry land for repairs.

The public knows little of Thawzone (Teezee or TZ to the nicknamers of the trade) but the servicemen of this and other countries at the refrigeration "water-fronts" know that it is the moving dehydrant or "drydoc" of the industry that pulls many a unit out of a wet situation in to "dryland." TZ—for its efficacy, low cost-of-use and non-dilution of refrigerant—was a proven success years before we went to war.

"A little goes a long way"

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The PIONEER FLUID DEHYDRANT

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3-WAY PROTECTION FOR EVERY INSTALLATION!

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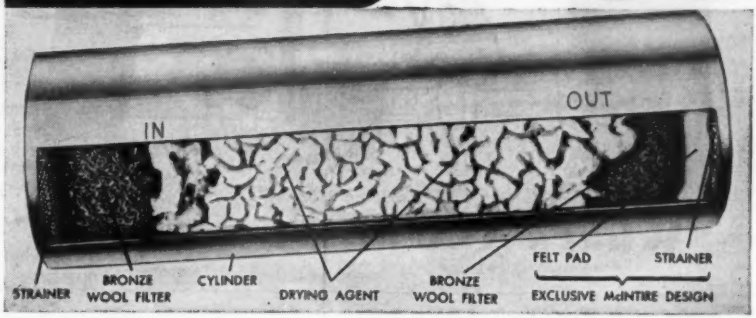
NO ACID



One DFN cartridge does *three* jobs. It adsorbs moisture. It filters sediment. It neutralizes acids. And it's the *only* unit that offers you this triple protection.

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Only the **DFN SYSTEM** DEHYDRATES FILTERS NEUTRALIZES

DEHYDRATORS • STRAINERS **FILTERS • NEUTRALIZERS**

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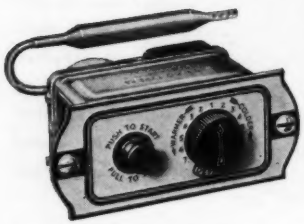

Ask your jobber about the exact replacement Rancostats, such as the one illustrated here, about the commercial and domestic controls.

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WORK WITH YOUR JOBBER

The production of Ranco Controls is limited. If the type you desire is not available, your jobber will recommend one that is easily adaptable.

Ranco Inc.

COLUMBUS 1, OHIO

The Refrigeration Service Engineer

Vol. 12 No. 9

September, 1944

A Monthly Illustrated Journal Devoted to the Interests of the Refrigeration Service Engineer in the Servicing of Domestic and Small Commercial Refrigeration Systems

Official Organ
REFRIGERATION SERVICE ENGINEERS SOCIETY

The Cover

Refrigeration Equipment at Douglas Aircraft Co.'s Chicago plant maintains required temperatures during chromic acid bath of parts. (See story on page 26.)

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Government Bureaus—News and Rulings

RULINGS and announcements issued by the various Government Bureaus of interest to the refrigeration service industries are summarized below covering the more essential facts. Those who desire further information on any specific regulation are advised to write the proper government agencies.

Some Freon for Theatres

A SMALL amount of the air conditioning refrigerant, Freon 12, has been made available for distribution to theatres where lack of this refrigerant has caused acute hardship, the War Production Board reported August 16. Theatres seeking Freon 12 are requested to submit the following information to WPB: Weekly average attendance of theatre, number of hours per week that the theatre operates, whether or not the theatre has been closed because of a lack of this refrigerant, whether or not attendance has decreased as a result of a shortage of Freon and if so, the percentage of such decrease; the normal supply of Freon needed to fill air conditioning system completely and the approximate number of unused pounds of Freon now in the system.

This information should be submitted in letter form as an appeal under Order M-28, and should be addressed to Franklyn B. Millham, General Industrial Equipment Division, War Production Board, Washington 25, D. C.

Freon Order Amended

Order M-28 as amended August 21 shows no substantial changes in the basic order. The certification stated on the order must be placed upon all user's orders or on the vendor's delivery receipt as follows:

"The undersigned purchaser certifies to the seller and the War Production Board that he does not have any F-12 gas cylinders not owned by him which have been empty for more than 15 days, and that the F-12 gas covered by this order will not be used or resold for any purpose not permitted by Order M-28."

The standard (WPB general) certification in the form described in Priorities Regulation 7 cannot be used instead of that described above.

Order L-38 Amended

New Restrictions on MRO Purchases

A PREFERENCE rating of AA-5 or higher is required on new refrigerating systems or parts in the amended Order L-38 issued by WPB on August 31. Principal exception to this general restriction is made when a repairman, under CMP-9A or Order P-126, makes necessary replacement of a part in repairing a refrigerating system owned or operated by a farmer or householder.

The use of MRO ratings under CMP 5 and 5A is further restricted. An ultimate consumer may apply an MRO rating to get a new system or new parts to replace his equipment which has worn out, but in most cases he must apply to WPB to get additional equipment. See (d) below.

Order L-38 as amended places restrictions on manufacture of all items except parts for maintenance and repair which may be produced without reference to these restrictions. Certain listed items may be produced to the extent of 25 per cent of the dollar value made in 1940 or in amount of all unfilled orders on hand rated AA-5 or higher. The ban on production of many other items is continued.

Specific restrictions from the order are:

Restrictions on Deliveries

(c) AA-5 or higher ratings required. No person shall deliver or accept delivery of any new system, any new parts, any new industrial type extended surface heating equipment, any new industrial type humidifying equipment or any reconditioned system containing a new condensing unit (with or without motor or controls) or containing a new compressor unit, except under an order rated AA-5 or higher. Certain exceptions are made in (f) below. Paragraph (e) explains what form should be used in applying for ratings.

MRO Restrictions

(d) Restrictions on use of blanket MRO ratings; exceptions to this rule. (1) The blanket MRO ratings (as defined in (E) (2) of Priorities Regulation 3) assigned by CMP Regulations 5 and 5A or any other regulation, order, or certificate may not be used to get any new system, condensing unit

(with or without motor or controls), compressor unit, low side, evaporator, cold storage door, insulated enclosure, or any reconditioned system containing a new condensing unit (with or without motor or controls) or containing a new compressor unit, unless it is needed to replace equipment of substantially the same size or capacity which has become worn out or damaged beyond repair while in the purchaser's possession and unless he has had it at least ninety days. In addition, no blanket MRO rating may be used to get any new parts to enlarge the size or capacity of any used or reconditioned system or to improve its design or change its function. If new equipment is needed for the purposes prohibited under these rules, it should be applied for in accordance with (e) below.

(2) The restrictions in (d) (1) above do not apply to the use of AA-1 blanket MRO ratings assigned by CMP Regulation 5, or 5A or any preference rating order, providing the equipment is to be installed and operated in the production area, cafeteria or restaurant of an industrial plant (excluding offices, recreation rooms, conference rooms, drafting rooms, first aid rooms, change and rest rooms, and dispensaries).

How to Apply for Ratings

(e) (1) When an ultimate consumer needs a new system, new parts, new industrial type extended surface heating equipment or humidifying equipment, and may not use his MRO rating to get them, he should apply on Form WPB-617, or other appropriate construction form when permission for construction is required. Form WPB-1319 should be used in all other cases. (These forms are not required for equipment to be delivered for direct use by the Army, Navy, Maritime Commission, or War Shipping Administration.)

(2) Distributors or dealers who need such new equipment for inventory should extend their customers' ratings, and may apply on Form WPB-547 (formerly PD-1X) to get additional inventory from producers, or on Form WPB-541 (formerly PD-1A) if they buy from distributors.

When Rated Orders Not Required

(f) A rated order is not necessary under this order for the following transactions (although other orders, such as L-128, may still require a rating for particular parts, such as electric motors).

(1) When a repairman under CMP Regulation 9A or Order P-126 installs any part for a farmer or householder, in repairing a system owned or operated by the latter, if the repairman merely replaces a part of substantially the same size or capacity which the repairman knows or has reason to believe has become worn out or damaged beyond repair while in the purchaser's possession and after he has had it for at least ninety days.

(2) The delivery and receipt of a complete new farm milk cooler, or a new system to be used in a farm milk cooler owned by a farmer, when the purchaser has a purchase certificate from a county farm rationing committee under applicable orders of the War Food Administration. A dealer who has received a specific order from a farmer having a purchase certificate may apply a preference rating of AA-3 to his order, in accordance with Priorities Regulation 3, to get a farm milk cooler or system to fill the farmer's order, or to replace in his inventory the cooler or system used to fill the order. Ratings to afford the dealer an additional inventory, however, must be applied for on WPB-547 or WPB-541.

F. W. Smith to Leave W.P.B.

FREDERICK W. SMITH, for nineteen months Chief of the Special Equipment Branch of the General Industrial Equipment Division of the War Production Board, will become associated with Carrier Corporation on November 1, it was announced by Cloud Wampler, President of the Syracuse, N. Y., air conditioning and refrigeration company.

The Special Equipment Branch of WPB has jurisdiction over five important industries, including refrigeration and air conditioning.

Hand Service Tools Not Available

MECHANICS' hand service tools will not be available to the general public, above present flow levels in consumer channels, until requirements of the armed services are satisfied, the Tools Division of the War Production Board said August 8 in releasing figures on shipments and new and unfilled orders for the first half of 1944.

Mechanics' hand service tools include pliers, wrenches, ball peen hammers, screwdrivers, etc. Wood-working tools, edge tools, and such heavy-forged tools as sledges,

picks, crowbars, etc., are excluded from the list of hand service tools, the division pointed out.

* * *

Restrictions Eased on Equipment Installations

Provisions pertaining to equipment installations and the installation or relocation of machinery in a structure as controlled by Construction Conservation Order L-41, have been modified, the War Production Board reported August 21. These changes were made by amendment to Conservation Order L-41, amendment to Direction 2 of Order L-41, Interpretation 10 of Order L-41, and amendment to Direction 15 to Controlled Materials Plan Regulation No. 5.

Under these amendments, any person may install a single piece of machinery or a group of related pieces of processing machinery or equipment approved by WPB if the total cost does not exceed $25,000 and if the cost of the job, not counting the cost of equipment, does not exceed $5,000.

* * *

Cork Supplies Increased

WITH imports of cork substantially increased during recent months, the War Production Board is studying a proposal to raise the monthly allocations of cork to industries, WPB said August 12.

Minimum monthly allocations of grinding and milling cork may be raised from approximately 7,000 tons to 8,900 tons for each of the next three months, the Cork Industry Advisory Committee was informed at its meeting with WPB officials. Certain supplementary imports from Portugal will be discontinued next month, a WPB representative said.

Closer liaison between various governmental agencies and foreign producers of cork should insure adequate shipping tonnages, even from sources in North Africa, a Government official pointed out. Monthly imports of cork for the first six months of this year averaged approximately 3,775 tons a month, against average usage of 8,609 tons per month, WPB said. Imports increased in June and July, averaging about 10,000 tons a month. Estimated stocks on July 31 approximated 64,000 tons, Government cork authorities indicated. Cork stocks on June 30, 1944, amounted to 58,173 tons, which was slightly under the stockpile minimum.

Total cork tonnage under Government ownership is between 12,000 and 18,000 tons. Of this amount, 7,000 tons are in open storage and the remainder, in various categories, is in closed storage. The committee recommended free use of several tons of substandard cork shavings now in open storage. Immediate consumption, above normal allocations, of these wet shavings was urged for any purpose of essential production. It was emphasized that these inferior cork shavings, under DSC control, are in bales that would suffer damage if permitted to remain in open storage another winter.

Gaskets, corkboard insulation and ammunition plug requirements of armed services are increasing, the Government presiding officer said. However, upward revision of minimum allocation for the next 90 days will be explored despite any possible decrease in cork imports.

* * *

Inventory Restrictions Lifted

REPAIR and replacement parts for commercial refrigeration equipment and materials or finished goods sold to a supplier under Priorities Regulation No. 13 are exempt from Suppliers' Inventory Limitation Order L-63, the War Production Board has ruled (August 8).

By amendment, L-63 includes the above items in List A, which specifies goods not defined as "supplies" within the meaning of the order. L-63, in force for more than a year, established supplier inventory controls for such items as electrical supplies, hardware supplies, automotive supplies, plumbing and heating supplies, restaurant supplies.

Among those exempted from the inventory limitations of the order are any person whose business consists in whole or in part of the sale from stock or inventory of repair and replacement parts for commercial and industrial refrigeration equipment. This includes wholesalers, distributors, jobbers, dealers, retailers, branch warehouses of production and other persons performing a similar function.

* * *

Purchase of Motor Trucks

THE Office of Defense Transportation on August 15 resumed the acceptance of applications for the purchase of new light motor trucks for essential civilian use. The action is expected to dispose promptly of

the small number of such vehicles remaining in dealers' stocks, ODT said.

Acceptance of applications for these trucks (below 9,000 pounds gross vehicle weight) was discontinued because of the exhaustion of the essential civilian pool. On August 7 Government exempt agencies relinquished their claims on the light units remaining and these units reverted to a common pool. This pool will now be drawn on by essential civilian users, as well as by Government exempt agencies.

ODT district offices have been notified that applications may be approved and forwarded to Washington for final consideration when the applicant furnishes a letter from a sales agency stating that the specific light truck is in stock and giving the make and serial number. The letter also must state that a certificate of transfer or Government exemption permit for the particular unit has not been presented or held by the agency.

A new simplified application form for use in acquiring new commercial motor vehicles, designed to expedite action on applications to reduce the information required from motor vehicle operators, was announced July 28, by the Office of Defense Transportation. These forms (ODT-663) replace the old application forms (WPB-663).

On applications for light and medium trucks or truck-tractors (below 16,000 pounds gross vehicle weight), it will not be necessary for applicants to show the make or model designation on the application forms, although they may do so if they desire.

Permits Use of 50% Solder

PERMISSION to use solder having up to a 50 per cent tin content by weight, has been granted for three additional purposes, the War Production Board reported. Previously, solder with this percentage of tin was permitted only for ammunition boxes.

Revision of Tin Order M-43 permits this weight to be used for the manufacture, repair and maintenance of (1) refrigeration equipment; (2) radio and radar equipment and (3) for the manufacture and repair of any type of indicating, recording, measuring or controlling instruments and their associate control valves, excluding manufacture and repair of gas meters. Solder containing 35 per cent tin is permitted for manufacture, and 38 per cent for repair of gas meters, officials explained.

The amendment also clarifies the provision calling for certification from distributors of solders and babbitt metal. The distributor must now certify to the manufacturer that he will not re-sell to any user unless he has received the certificate from the user as required by the order, officials added.

Hitler? I think hanging is too good for him—I think they should make a sealed unit repairman out of him.

Maintaining Locker Storage Equipment

By C. W. Kniffin

Westinghouse Electric Elevator Co.,
Jersey City, N. J.

NOTE: While this article was written primarily for locker plant operators, it will be of interest to the service field. Besides providing an insight into the mechanical problems of a locker plant it contains information which may be passed on to locker operator customers—Editor.

EQUIPMENT performance is the common denominator of owner and manufacturer. It is that function of equipment upon which the success of the manufacturer depends. It is that result for which the owner pays his money. It is vitally important to both. Regardless of how careful the equipment is manufactured, the thin thread connecting this equipment and performance is in the owners' hands. This thread is maintenance.

Next to the latch on the locker room door, the most important equipment in the plant is the refrigerating system. Only through the uninterrupted operation of the refrigeration equipment does the plant fulfill its obligation to the public. This is one of the most critical applications that refrigeration knows. In air conditioning installations, troubles are immediately detected by the building occupants, but locker products never complain. The first indication of trouble might be from a non-returning patron. The locker plant operator must know how this can be avoided.

The well arranged locker room.

The Maintenance Problem

The whole maintenance problem may be divided into two parts. (1) Preventive maintenance and (2) Corrective maintenance. What is not done by the first must be done by the second. The first is the economical, the second the expensive method. Corrective maintenance is expensive in both labor and material. During the war, with both of these items limited, plant operators should have a definite preventive maintenance program. For economic reasons, this practice should be continued. Let us consider this phase of the problem first.

The maintenance of proper air conditions, of temperature, humidity and purity is the first consideration. This is the medium by which both your customers and their products come to know you. It is the vehicle that carries you to success. The optimum temperatures for your service are well known. Lower temperatures than required are paid for at a premium price. Higher temperatures lead to spoilage. Variation of temperature is most important. It directly controls desiccation. No vapor-proof wrap-

From address presented at the Conference of Frozen Food Locker Operators, University of Kentucky, Lexington, Ky.

ping can prevent desiccation in a variable temperature.

Although you normally depend upon automatic control to maintain conditions, it is recommended that you keep a daily log, either by manual readings, or preferably by recording instruments. This will accomplish a double purpose. It will indicate the existence of mechanical difficulties, and be invaluable in the negotiation of damage claims.

Refrigerant Leaks

Locker storage refrigeration uses mainly one of two refrigerants, Anhydrous ammonia or Freon. The protection of the refrigerant charge is the second maintenance problem. Loss of ammonia is dangerous. With the leakage of Freon refrigerants there is little danger involved, but you all know of the present shortage of this material. Loss of either refrigerant indicates costly operation, and early refrigeration failure.

Looking for refrigerant leaks has been described as the most unsatisfactory job in the world. In the first place, you are looking for something that you do not wish to find, and in the second place, if you find none you wonder if you have done the job well. This is an important job that must be conscientiously carried out.

Much has been done by the equipment manufacturers, since the inception of your industry, to reduce maintenance requirements. Let me briefly trace this development. Flat belt idler drive was first replaced by multiple V-belts, and finally by direct connection of motor and compressor. Forced feed lubrication of compressor bearings replaced splash oiling. Refrigerant cooled motors have replaced air cooled motors. Today we have the compressors and motors direct connected, entirely enclosed, with stuffing boxes eliminated. The motor is internally cooled by suction vapor and never requires separate bearing lubrication. This equipment uses Freon as the refrigerant.

Many other improvements have been made in evaporators, condensers, and controls, with the object of improved efficiency, and reduction of service requirements. Post war planning is now being carried out with the idea of reducing the cost of ownership of your equipment.

Substitute materials, as a war measure, have added in some cases to normal operating problems. This effect on a long term policy can be neglected. The overall effect of the war on the refrigeration equipment manufacturing industry is far greater than can be foretold at this time.

A sensible preventive maintenance program should be based on a monthly inspection and service record. Such a record will be valuable as a time saver for service engineers, when their help is required.

For this record a minimum of five items should be recorded.

1. Power and water consumption.
2. Operating pressures.
3. Amount of refrigerant in system or amount added.
4. Net amount of lubricant added to compressor.
5. Off season work required.

There are in addition six items that should be checked over monthly.

1. The system should be inspected for refrigerant leaks.
2. Frost accumulation on evaporator surface watched.
3. Lubrication of bearings should be provided for.
4. Belt adjustment must be kept correct.
5. You should listen for noise and vibration.
6. Keep looking for corrosion.

Maintenance

Let me repeat, next to the latch on the locker room door, the most important equipment in your plant is the refrigerating system. This is meant to emphasize the necessity of attention to the small things in your plant, especially the equipment with which the patron comes in contact. Your advertising is from person to person. Keep each individual satisfied and all are satisfied. The refrigerator door, though necessarily heavy, must swing easily. To have a patron locked in a low temperature room would be a calamity.

How far you should go with corrective maintenance depends upon

1. The ability of your help.
2. The availability of a service organization.
3. The availability of replacement parts.
4. The availability of time for repairs.

Of these, one of the most important items is replacement parts. There are in general three sources for their procurement. The manufacturer maintains a fairly complete stock of service parts. Your service organization normally carries some, and other parts will be available to the service engi-

neer from refrigeration jobbers stock. Don't overlook this source.

Tools are an important item. Your service organization will have all that are necessary for your equipment. He probably will have special tools for equipment manufactured by others. Unfortunately they cannot all be carried by the service engineer. You should have available in a definite, convenient place such common tools as are normally required. Some special tools are desirable. Your service organization manager will give you his recommendation. I might mention a few for your guidance. If you use an irritating refrigerant, get a gas mask. Keep it in a case accessible from an outside door. You should have a leak detector, a halide torch for Freon, Sulphur tapers and litmus paper for ammonia. A tube expander if you have shell and tube equipment.

Inspection by Service Man

No matter how well your own help is equipped, call on your service organization once a year. Have your plant inspected thoroughly by an outsider. You will be surprised how much he will see that is just commonplace to you. It is just the same old principle, that a specialist is a man with a new viewpoint. Compare this principle with the slogan "See your Doctor once a year."

Refrigeration service is a real science. Most organizations have spent years training their employees. Their greatest problem is that of having sufficient men to meet the peak demand for service. Their greatest number of service calls occur in the hottest months. It would help the service organization, and help you, if you would plan any major repair jobs in the winter months. A preventive maintenance program helps you do this.

No paper on plant maintenance can neglect the important matter of insulation. If you have taken the advice of insulation specialists at the time of installation, you have little worry. The present practice is based on years of construction experience, and except for damage by mechanical means and reduction of temperature below your design limits, your insulation should last many years. I have only four suggestions for the care of this item. Protect vulnerable places where you find trucks or merchandise damaging walls, by buffer boards. Keep watching for condensation or frost accumulation; this means air leakage. Don't vary temperatures, or operate too low. Start with the best material available.

For those of you who are contemplating new installations, let me say there is no better way to reduce maintenance than to make correct application of equipment to fit your needs. Unlike design, which is science, Application Engineering is as yet an Art. It is predicated on experience. It is the result obtained after years of study of job requirements and equipment performance. There is no substitute for correct application.

In conclusion, let me repeat. Keep accurate records of storage temperatures. Not only are they useful in the diagnosis of equipment difficulties, but they will be most valuable in claim negotiation. Establish a policy of preventive maintenance. Make small repairs while they are small—don't wait for equipment stoppage. Know where you can get replacement parts. Have an outsider make an annual inspection.

FROZEN FOODS MOVIE PRODUCED BY G-E CONSUMER INSTITUTE

IN answer to a growing demand for more information about the preparation of foods for freezing, the General Electric Consumers Institute, Bridgeport, Conn., has produced the first 16-mm. full-color sound motion picture covering this subject in detail.

Demonstrated in the movie are preparation steps for freezing fruits and vegetables, and the cooking of frozen foods. Also included are details on proper cutting, types of packaging and wrapping.

The film was written and produced under the technical direction of Dr. Donald K. Tressler, Manager of the Consumers Institute, who pioneered the frozen food industry back in 1929 and is recognized as the country's foremost authority on the subject. The fruit and vegetable preparation scenes were executed by Adelaide Fellows, Consumers Institute staff member who is well known throughout the country for the able platform demonstrations and training classes she has conducted in the field for G-E Consumers Institute. Meat, fish and fowl preparation scenes were filmed in a model locker plant at Lancaster, Pa.

Potential audience for this educational film is expected to run well into the millions for it will be made available to utilities, department stores, locker operators, REA cooperatives, schools and colleges.

OPA Investigates Service Charges in Washington

IN a bulletin issued to its members, the Electric Institute of Washington warns that there will be a stricter enforcement of maximum pricing regulations for service work in the District of Columbia. A check-up is now being conducted of all service agencies in that area by the District OPA offices to see that all the firms involved have filed with OPA their maximum prices and the additional information required.

If they have not already done so, operators of service concerns are advised by the Institute to file their maximum prices immediately. For those whose pricing lists are already on file with OPA, the bulletin lists the following information as a check to insure each firm's supplying OPA complete data in compliance with RMPRR-165:

1. General pricing provisions permit filing of maximum prices either as actual dollar and cents charges for specific service operations or on the basis of a "pricing method" or formula which the firm used to determine its prices in March, 1942. This should include an hourly rate of charge for labor with any minimum charge per call; basis of charge for parts and materials; and any charge for traveling time. These charges should be given for each classification of customer served during 1942.

The maximum price should be established on the first of the following OPA provisions which applies to the firm:

a. The highest price at which the firm supplied the same service in March, 1942.

b. The highest price at which the firm offered to supply the same service in March, 1942.

c. The maximum price of the firm's closest competitor.

2. A service firm cannot make a higher charge for transportation costs, financing, inspection, or other similar operation than was made in March, 1942, continues the Institute bulletin.

3. A statement of maximum charges or pricing methods must be prepared and kept for examination by any person, and a duplicate of this statement must be filed with the firm's local war price and rationing board.

4. If the firm's maximum prices for material and parts are based upon a manual or catalog, the firm may clearly identify on its price statement the manual, parts catalog, or price list by name, edition, number, and date, instead of including in its price statement all of these retail prices. This price statement should also include percentage of markup on costs of parts, if that was the firm's practice in March, 1942.

5. If the firm has customarily given sales slips or receipts, the OPA regulation requires that it continue to do so, but regardless of past practice, a firm is compelled by the regulation to give an itemized sales slip to any customer who requests it.

6. The term "service" now includes the rental of commodities, so any firm renting appliances must also file its rental charges with OPA.

7. All persons covered by pricing regulation are automatically licensed, and this license may be suspended for violation of any of the applicable regulations, points out the Institute bulletin. If a firm's license is suspended, the firm may not make any sale during the suspension period for which its license has been suspended.

8. If a firm fails to keep its price records or file statements with the OPA, the latter may issue an order establishing maximum servicing prices for the firm, in line, of course, with the prices established by the regulation.

9. Previous provision for increasing a firm's ceiling prices because of overtime work, increased labor costs, or up to twice the firm's basic hourly wage rate, still apply, the bulletin declares.

S S S

ICE FREEZER FOR AAF SQUADRON

AN ice freezer made by Lt. Harry F. Dole, Mississippi, is an important piece of equipment to members of an AAF medium bombardment squadron located in the Southwest Pacific. To the officers and men of this outfit sweltering under a hot tropic sun, the freezer's mechanical well-being is as important as that of any of the squadron's bombers.

On the Aircraft status board is posted the daily status of each plane, whether it is in or out of commission and the names of the pilots assigned to the planes. Prominent in this list is the ice machine, the first the squadron has had in its three years in the tropics. Its daily status is rarely posted as out of commission, and under the heading "Pilots Assigned," Lt. Dole is listed as engineering officer. Besides building the machine, Lt. Dole now helps maintain it.

Servicing General Electric CA Machines

FOURTH ARTICLE—Continued from August Issue

The first three articles in this graphic presentation of servicing the General Electric CA machines covered the first fifty-one operations. The installment in this issue concludes the series with operations 52 to 60 inclusive.

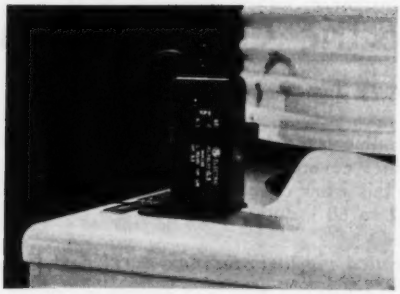
This picture story presents recommended methods for field service of the General Electric CA refrigerating machines taken from an educational film produced by the General Electric Co. This presentation will provide a better understanding of the operations of this machine and methods of diagnosing and correcting troubles.—Editor.

(52) Remove the locking connector from the connecting cord and strip the covering from the ends of both the leads.

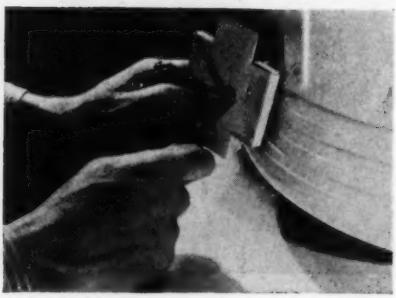
(54) Install the mounting bracket on the box top. Two screws hold it. The leads come up through the hole in the base.

(53) On Form A machines, slip the rubber tubing over the wires where they come through the box top.

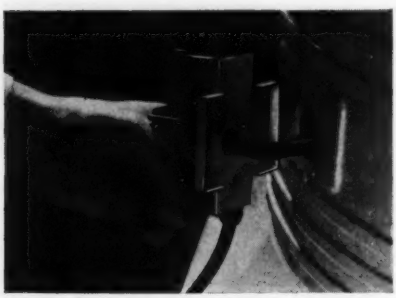
(55) Break off the small piece of the relay cover between the lead openings. This gains necessary clearance for the wires.



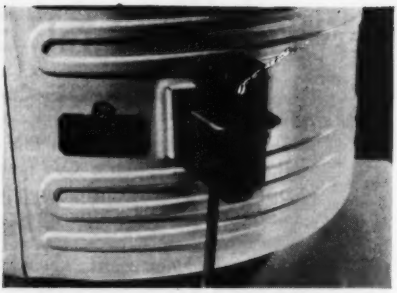
(56) Connect the leads to the relay terminals and attach the relay to the upright bracket with the spring clip.



(57) On Form B machines bring the wires through the hole in the accessory back plate. Place the turned over edges of the plate toward the condenser.



(58) Connect the leads to the relay and assemble the relay to the back plate with the U bolt, lockwashers and nuts.



(59) This assembly is then mounted on the condenser with two screws. The tapped holes are already in the condenser.

(60) R relay wiring instructions for CA machines are shown in the printed table (opposite page) furnished with each replacement relay

REFRIGERATION HELPS PRODUCE DOUGLAS PLANES

REFRIGERATING equipment does its share—an important share—in the production of the Douglas "Dauntless" and the Douglas four-motored "Skymaster" supertransport. (See front cover illustration.)

In the Douglas Aircraft Company's plant at Chicago, many of the parts used in the two planes are given six special baths and treatments to lengthen their wearing power. Carrier refrigerating machines maintain the required temperatures during the chromic acid bath that is one of the six operations.

Other Carrier equipment cools nitrate tanks and spot welding operations.

Extrusions, angles, bars, wing spars and other parts are given the special baths. Tanks, having a capacity of 9,000 gallons, are filled with a solution of 5 per cent chromic acid for the chromic acid bath. The parts to be treated are immersed in these tanks from an electrically-operated crane. Each part receives 40 volts of electricity, with 3½ amperes to each square foot of surface, for 30 minutes.

To prevent heat produced in the chromic acid bath process from raising the temperature of the solution, causing it to become less effective, the heat is removed by a mechanical refrigerating system. The system consists of a 40-ton Carrier refrigerating com-

WIRING CONNECTIONS

Type and Form of Machine	3-wire Cable to Compressor			2-wire Connecting Cord		3- or 2-wire Cable to Cabinet Top			3- or 2-wire Cable to Fan Motor			3- or 2-wire Cable to Capacitor			2-wire Cable to Doughnut	
*Color of Leads	R or G	W or Y	B	W	B	R or G	W	B	R or G	W	B	W	G	B	W	B
CF except Form B, Early Form C, and CF28 25-cycle	3	1	2	2	A	4C	2C	A	..	..		..			..	..
CF Form B and Early Form C	3	1	2	B	B	B	B	B	..	..		..	..	..	4	2
CF-28 25-cycle	3	D	2	2	A	4	2	A	..	..		1	..	D	..	..
CFS	3	D	2	2	A	4	2	A	..	..		D	E	1	..	..
CH-1A	3	1	2	2	A	..	4	A	..	4	2	..	..		..	..
CH-1 Later Forms	3	1	2	2	A	..	4	A	3	1	2	..	..		..	..
CE except CE-34 and CE-340	3	1	2	2	A	4C	2C	A	3	1	2	..	..	..	..	..
CE-34A	3	D	2	B	B	B	B	B	3	D	2	1	..	D	2	4
CE-34B	3	1	2	B	B	B	B	B	3	1	2	..	..		2	4
CE-34 Later Forms (Not CE-34M)	3	1	2	2E	A	4E	2E	A	3	1	2	..	..		..	..
CE-34M	3	D	2	B	B	B	B	B	..	4	2	..	1		4	2
CE-340A	3	D	2	B	B	B	B	B	3	D	2	1	..	D	2	4
CE-340 Later Forms	3	1	2	B	B	B	B	B	3	1	2	..	..		2	4
CJ	3	1	2	2	A	4C	2C	A	..	..		..	..		..	..
FBA	3	1	2	2	A	4	2	A	..	..		..	..		..	..
CK	3	1	2	2	4	..	..	..	..	..		..	..		..	..
DK	3	1	2	2	4	..	..	..	..	..		..	..		..	..
CA	3	1	2	2	4	(Connect Oil Conditioner Leads to Terminals 2 and 4)										

NOTES: (REFERRING TO LETTERS IN ABOVE TABLE)

(A) The black lead of the connecting cord is permanently attached to the black lead to the cabinet top.

(B) On all CF Form B, early CF Form C, CE-34M, CE-34A, CE-34B, and all CE-340 machines, the two-wire connecting cord and the three-wire cable to the cabinet top come to a circular connector called a "Doughnut" connector.

(C) On early production 1938 CF, CJ and CE machines (except CE-34 and 340) the red and white leads in the three-wire cable to the cabinet top were reversed. On these machines, which had Type N relays, the white lead in this three-wire cable went to the upper terminal on the overload section of the relay instead of terminal (5) and the red lead went to terminal (5) instead of to the overload terminal.

When replacing Type N relays having this original hook-up, with Type R relays, the white lead should go to Type R relay terminal (4) and the red lead to Type R relay terminal (2). On later machines the white lead goes to terminal (2) and the red lead to terminal (4) of the Type R relay.

(D) On CE-34M machines (1937), the white lead of the three-wire cable to the compressor is attached to one of the capacitor terminals. On CE-34A and 340A (1938) machines, the white lead to the starting winding, the white lead to the fan motor and the black lead to the capacitor are connected together by a connector. On CF-28 25-cycle machines, the white lead from the compressor and the black lead from the capacitor are connected together by a connector. On CFS machines, the white lead from the compressor and the white lead from the capacitors are connected together by a connector.

(E) Early CE-34C machines were wired with the white lead of the cabinet top cable going to terminal (4), the green lead from the cable to terminal (2), and the white connecting cord lead to terminal (4). Later production machines were wired as indicated in the table and replacement relays can be wired either way.

* Color Code: R—Red Lead W—White Lead B—Black Lead G—Green Lead Y—Yellow Lead

TABLE OF RELAY WIRING INSTRUCTIONS FOR GENERAL ELECTRIC CA MACHINES

pressor, evaporative condenser and necessary controls and connections.

The temperature of the chrome acid bath is held between 93 degrees F. and 98 degrees F. Heat is applied when the low limit is reached. When the temperature reaches 98 degrees F. the refrigeration is automatically turned on to cool the bath. By operating within the specified temperature range the coating is not "too-soft" and the oxide film formed on the parts provides a protective coating. The film helps prevent the breaking down or corrosion of the metal when in contact with gas, oil, alcohol, salt spray or when exposed to weather. The coating, forming an anodized surface, has an excellent adherence quality for paint and is a non-conductor of electricity.

An official of the Douglas Aircraft Company reports that the guess work of the bath operation has been removed by the temperature control.

Refrigeration consisting of two compressors, one evaporative condenser, control and connections are likewise used to keep a nitrate bath at desired temperature. Here the temperature range of the solution is held between 40 degrees and 60 degrees for the best quenching operation. The capacity of the refrigerating system totals 20 tons cooling effect. Uniform and maintained bath temperature has increased production is the report on the use of the refrigerating system.

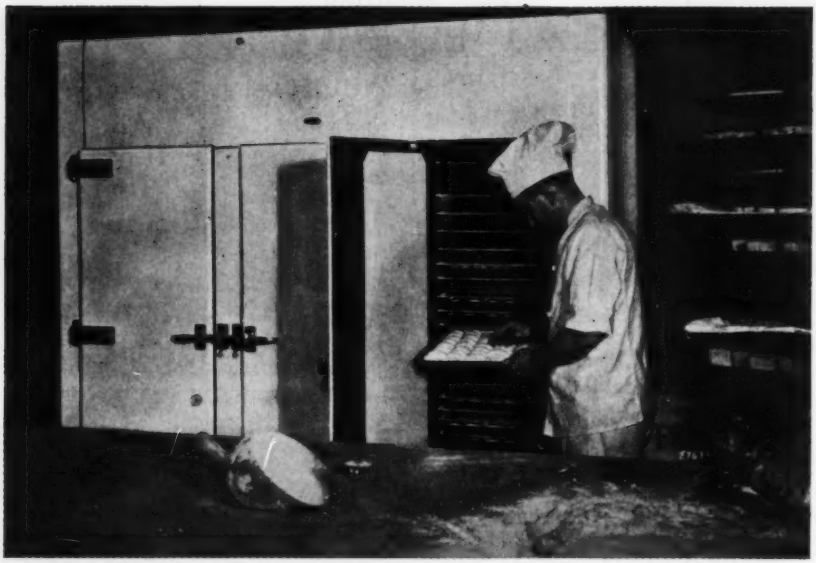
Spot welding machines are served by a refrigerating system which furnishes 20 tons of cooling maintaining 50 degrees F. The resulting benefit of temperature control is increased life of electrode tips.

The Carrier refrigerating machines at the Douglas plant total in cooling effect the equivalent of the melting of 160,000 pounds of ice daily. Refrigerant condensing is obtained with evaporative condensers which provide economic operations and low water consumption of the cooling systems.

S S S

J. C. Bruce
Temple, Tex.

I enjoy your magazine very much and think that it is the best that is printed today.



A retarded dough refrigerator in a York, Pa., bakery. Courtesy C. V. Hill & Co., Inc.

Refrigeration in Bakeries—Retarded Dough Process Successful

AMONG retail bakers, a significant development is the trend toward a retarded dough process involving the holding of certain doughs and other bakery products under refrigeration. Through the use of this process, the dough mixtures are placed under refrigeration immediately or shortly after mixing. In this way they are chilled so that action of the yeast or aerating agent is retarded for periods varying from several hours to several days. The baker then removes the doughs or batters from the refrigerator at whatever time is most convenient from a production or sales viewpoint, after which he proceeds with make-up, proofing and baking operations in the usual manner.

Retarded doughs were introduced to this country from Europe about 20 years ago. Much of the credit for popularizing this idea in this country goes to Frank G. Jungewaelter, secretary of the Associated Retail Bakers of America. It was this Association which introduced the process at the National Retail Bakers Association in St. Louis in 1932. Since then the Association has worked to develop the process for the benefit of retail bakers.

The illustration reproduced above shows a three-compartment refrigerator designed for use in bakeries. This is the average size that is used by most bakeries. It is approximately seven feet long, 3½ feet deep and seven feet high. This incidentally is a pre-war photograph, but it gives a good idea of the equipment now available.

With the retarded dough process the baker can mix and mould an entire batch of dough, or divide it into units to be used as de-

sired. In this way, fresh products may be baked three or four or more times from one batch. Some doughs may be refrigerated more readily than others, those with high fat content being more easily refrigerated. Size of the batch also is a controlling factor since the smaller the batch the more quickly heat from the center may be expelled. With its continued use, this process has become more and more popular. Most of the troubles experienced have come from the use of improper refrigerator equipment.

Use of Low Temperature

For this process, present practice is to maintain a temperature of about 38 to 40° F. with a relative humidity of 85 to 90 per cent. A temperature of 32° F. with relative humidity of 90 per cent is considered ideal, and a still lower temperature would be desirable but it is difficult to maintain proper humidity conditions as the temperature goes down. In this connection, use of a low temperature refrigerator is receiving attention. Experiments are being made in the research bakery of the Associated Retail Bakers of America in Chicago wtih a Deep-Freeze unit which, it is expected, will produce some tangible results. These experiments are being made under the direction of Mr. Jungewaelter. Unless the right humidity is maintained, it should be explained, an undesirable crust is likely to form. With freezer units, low temperatures are a certainty and it is hoped that some method can be developed to retain the right humidity and be of direct benefit to the bakery industry.

Neither ordinary mechanical refrigerators nor ice refrigerators can be satisfactorily adapted for refrigerating retarded doughs. They do not provide the necessary high humidity, quick cooling and relatively low temperatures, all three of which are indispensable. To thoroughly retard yeast action, warm doughs must be chilled quickly through the center and held at the desired temperature, which is somewhat colder than is maintained in ordinary refrigerators.

Refrigerated Dough Cabinet

The usual type of refrigerated dough cabinet is about 72 in. wide, 56 in. high and 30 in. deep. It is provided with a series of doors which give easy access to the different compartments. There is space for the various kinds of raw materials which need refrigeration for safe keeping and a separate section for doughs. One side of the cabinet is usually equipped with a rack or shelving to serve as a receptacle for baking pans containing unbaked products.

The compartment with the racks is very important. The racks should be properly spaced so that the products in dough form will not be damaged in any way when they are placed in this rack or removed from it. This part of the refrigerator is used to retard the yeast action in yeast-raised products. This yeast action may be retarded for the time desired. In some cases bakers may wish to retard the action for a few hours only while for others they may wish to hold it for 18 to 24 hours or even longer.

While the use of mechanical refrigeration for this purpose is becoming more efficient, all problems have not yet been overcome. Encrusting due to the condensation of moisture on cooling coils which lower the relative humidity of the air in the refrigeration, is something that requires a lot of consideration. The crusting is caused by the dry air. To avoid this, is was necessary to cover the made up units or batches of dough either with moist cloths or waxed paper. This, however, had its disadvantages and upon further study a method was developed which overcomes this problem to a large extent. It is the addition of an air circulating system through which control of relative humidity is made possible. Through additional investigations of this condition it has been found that this method does control relative humidity to a considerable extent.

Storing Finished Goods

While moist air is desirable for unbaked doughs, it is undesirable for the storage of finished bakery goods. In the case of cakes, icings and certain types of fillings in which it is desirable to maintain crisp qualities, moist circulating air causes icings to run and in some cases drip. This makes it desirable, therefore, for bakers who have use for only one refrigerator, to have a sealed compartment fitted with pan racks in which an air circulating system may be installed to take care of unfinished products and leave the balance of the space without air circulating to be used for the storage of finished baked products. There are now on the market refrigerating units equipped with separate air conditioning compartments which provide proper storage conditions for both unbaked and finished products.

Refrigeration Service in the South Pacific

By SERGEANT CHARLES B. DUNHAM

CAMP LEE, VA.—While the attention of the world is centered on huge concentrations of striking power at focal points of attack, of tremendous importance in the military picture are those many small contingents stationed at outposts and supply bases throughout the world.

In many of these smaller Army units, Quartermaster service and supply functions are taken care of by composite Quartermaster companies.

CAPT. BARBER

Such a composite company was assigned to Tongareva Island in the Cook Island group in the South Pacific. Headed by Captain William G. Barber, its primary purpose was to handle all Quartermaster activities in the area including a small fixed laundry, bakery, ice plant, shoe repair, clothing and equipment repair, commissary and class I, II, III, and IV supplies—food, individual clothing and equipment, gasoline and oil, and station property, respectively. In addition the company operated all water transportation.

Early in 1943 the QM company along with other units of the military occupied the island and built an air-strip to protect supply lines to Australia.

The climate in the region is hot, although men can become accustomed to it. The humidity was high, but breezes usually tempered the climate.

Being within the tropics, refrigeration to preserve perishables was one of the more important needs of our troops. Portable refrigeration units and a 3.6-ton ice plant were installed.

There was for a time quite a bit of difficulty in getting sufficient water. Wells had to be dug into the ground—coral rock—and the seepage was very slow. An aerated water tower was built to reduce temperatures and re-use the water. This worked fine till a lull came in the prevailing winds, resulting in no circulation of air in the water tower. The problem was then partly solved by constructing a homemade fan out of salvaged lumber. No pulleys were available so they were made of wood. A gasoline engine was obtained and used to run the fan shaft.

The ice storage room would not keep ice without some means of cooling, necessitating the installation of a circulating brine system which provided 4,000 cubic feet of extra storage place maintained at a temperature of 35 degrees Fahrenheit.

Due to the high humidity frost accumulated on the forced convection or blower coils. A hot gas defroster was set up to defrost the coils twice daily.

Minor mechanical problems were encountered from time to time. Points would burn out on the gas engine of the portable unit. When they did, spare "jeep" points were used after being filed to make them fit. There was no supply of belts, so ropes had to be used by splicing them to make them endless. The agitator motor on the brine tank of the ice plant burned up once and a gasoline engine had to be substituted. Diesel generators were used and oil filters were repaired from scraps.

But despite climatic and mechanical problems, ice production was maintained at a steady rate—producing 7,200 pounds of ice every 30 hours. The ice was used in the hospital and in the mess halls to preserve food and cool beverages. Fishing trips were made to supplement the food served, and ice was taken along to preserve the fish on the way back.

Captain Barber served as head of the Quartermaster composite unit on the island from early 1943 to the beginning of 1944. He is at present officer in charge of the Refrigeration School at Camp Lee's Army Service Forces Training Center, where he served from August to October 1942 before leaving for the South Pacific.

A resident of Takoma Park, Maryland, the captain is married and has two sons, aged 15 and 16. In civilian life he operated his own refrigeration company, the Takoma Refrigeration Company in Washington, D. C. He was commissioned in the Army in 1942, having served with the National Guard since 1926.

COMMERCIAL

INCREASE BUSINESS BY DOING A MORE EFFECTIVE JOB OF SELLING *Selling*

Air Conditioning Industry Surveys Post War Outlook

THE industry of weather-making is on the threshold of the busiest moments in its 38-year history, says a feature article in The Wall Street Journal. Men who make air conditioning equipment are preparing for an annual post-war business of 300 million dollars, which will be 500 per cent more than the best pre-war year.

They plan to do something cool for everybody except the man in the street. The man in bed will enjoy refrigerated sleep. The man bound for work may ride, within a few years, in an air conditioned trolley or subway. At his office or factory he will be synthetically chilled. And the motorist may soon be able to have a cooler in his auto.

Better Models for the Home

Here are the reasons weather-manufacturers give for optimism:

Within a few years after the war, they say, sales of single-room cooling units for the home will be in the neighborhood of 60 million dollars annually, eight times what they were before the war. New post-armistice models will be lighter in weight, easier to install, and will incorporate new materials and processes developed during the war.

Can the average home owner afford air conditioning?

Manufacturers think so, at least if he'll be satisfied with a single-room unit for summer cooling only. Present indications are that these contraptions—they cool, dehumidify, filter and circulate the air—will sell for about $175 to $400, depending upon size.

The unit size required to cool a room to a temperature of bliss depends on such things as its location in the house, number of windows, number of people using the room. A rough rule-of-thumb in the industry is that a $200 unit is about right for 150 square feet of floor space.

Year-Round Installations

Year-round air condition for the home, however, is something else. This type of weather making heats and humidifies the air in winter, cools and dehumidifies it in

summer. New homes, it is felt, will provide the biggest outlet for this type of equipment.

Just before the war Servel, Inc., developed a gas operated unit which cools in summer and heats in winter. Servel officials believe it will be possible to install this combination heating and cooling unit in new homes after the war for less than $1,500. The best market, it is anticipated, will be in houses selling for $8,500 or more.

While this was the only double-purpose air conditioning unit on the market when the war broke out, other companies are planning to bring out similar units when production is again permitted. Westinghouse Electric & Manufacturing Co. recently stated that after the war it expects to place on the market equipment which can be used in conjunction with the heating unit and its precipitron air cleaner to effect a complete year-round control of air inside the home.

Demand from Industry

A record-breaking demand is anticipated from industry. In the transportation field alone, equipment men say, there will be enough business to keep them busy for a long time. All new passenger trains built after the war will be air-conditioned, they report. Transcontinental and interstate bus operators, with an eye on the post-war traveler, are counting on air conditioning to help them get their share of this business. Experts foresee the time, a bit later, when streetcars and subway trains will be air conditioned.

Non-cooled stores, hotels, movies and other commercial establishments which each summer lose business to air-conditioned competitors down the street will provide another substantial market for made-to-order weather, equipment men predict. The office building field is viewed as a wide-open market, since relatively few offices are now air conditioned.

Comfort in the Car

Even the family jalopy is a candidate for air conditioning. A large equipment company has just developed a cooler which can be installed in any car for less than $200. The cooler, a disc about a foot and a half in diameter and two inches thick, can be easily installed in the roof of an auto or on the back of the front seat. It is small enough so it gets in no one's way.

Based on the same principles as the single-room cooler, it can be run by a simple attachment to the car's engine. A tube running along the frame and through the dash board carries the cooled air from the mechanism under the hood to the outlet in the car. At least three automobile companies are considering this gadget for their post-war models.

Industry, where air conditioning started and developed into an important manufacturing tool, presents another alluring market. Control of the air in laboratories, machine shops and precision instrument plants is as essential to their operation as manpower or proper tools.

Air Control for Ships, Textiles, Rubber

To insure a perfect fit of matched sets of huge propulsion gears for cargo ships, for example, the gears are cut at a temperature held constant throughout the entire operation which lasts about two weeks.

Textile mills make use of air conditioning to speed up manufacturing. In cotton, silk and wool operations high humidity is required so thread will be smooth and pliable and to reduce static electricity, thereby lessening production-delaying breakage of threads. Nylon requires a low temperature during processing.

Plants that make a certain type of synthetic rubber require a temperature of 98 degrees below zero, Fahr. Temperature control is an important factor in testing radios. Their makers must know how equipment will stand up under sharp temperature changes, such as occur when a plane suddenly gains or loses altitude.

What Will The Home Refriqeration Requirements Be?

COMMUNITY freezing lockers, home freezers and "two-temperature" refrigerators are all scheduled for expanded post-war production according to a feature article in the New York Times. Which type will be most favored by homemakers in various types of communities is answered by the predictions of John Best, president of the Refrigeration Corporation of America, who found his clues in a survey of 2,500 users of wartime rebuilt freezers.

Frozen Food Centers

In rural and suburban areas, forecasts Mr. Best, community locker plants will become all-around frozen food centers where locker renters may buy frozen vegetables and meats at large-quantity savings, as well as freezing and storing their own produce. Home owners in such communities, whether or not a locker plant is available, will also want "auxiliary" home freezers, will prefer large-size units designed for both quick freezing and storage, and will keep them in the garage or utility room. Metropolitan apartment dwellers, on the other hand, will look for "two-temperature" refrigerators to supplement the freezing lockers they will have in the basement or rent at a neighborhood food store.

Frozen-food locker plants, already numerous in farm areas before the war, have increased to a total of about 5,000 and are often found in semi-suburban areas. Average rental is $10 to $12 a year.

To clarify descriptions of the several variations of home freezing equipment that have been announced it is helpful to keep in mind the temperatures required for different types of food preservation. Ordinary refrigerators are usually kept at 40 to 50 degrees Fahrenheit, with the "evaporator" or ice-cube chamber at 15 degrees. Frozen foods are best stored at zero degrees. But the ideal temperature for the sharp freezing process itself is 10 to 20 degrees below zero.

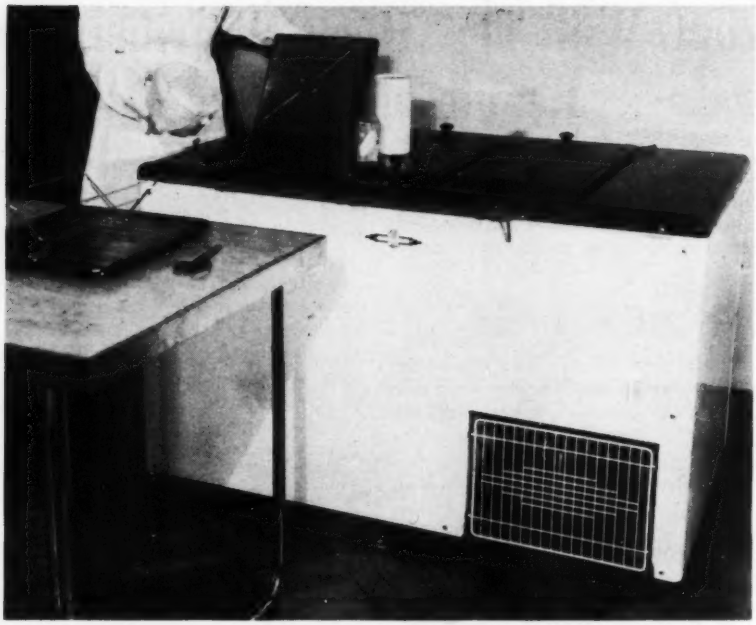
Home freezers above eight cubic feet in capacity usually have two compartments with separate temperature controls—one for sharp freezing at the lowest temperature, and one for storage at zero. Smaller units of four to eight cubic feet capacity are usually intended for zero storage only, but post-war versions of this type may function as freezers, too, according to Dr. Donald E. Tressler of General Electric Consumers Institute, who points out that the addition of a fan or metal plate on which to place food to be frozen would speed up the freezing process even though the actual temperature is no lower than zero.

Preferred Sizes

Apparently, the longer a homemaker's experience with home freezing the larger the size she considers most desirable. The Refrigeration Corporation's survey, concentrating mostly among rural freezer-owners, noted a preference for units with a capacity of sixteen to twenty-five cubic feet, or two-and-a-half to four times the size of the average household refrigerator. The makers of the "Deepfreeze," however, believe that most people prefer to keep the freezer in the cellar, and that the most popular size will be the largest that can be conveniently delivered down the cellar stairs of the average home—i. e., the nine-cubic-foot model.

Practically all the refrigerator manufacturers and many other new concerns have plans for making freezers in various sizes, from four to forty cubic feet.

The designers of these freezers are currently striving to perfect "convenience" features, such as front-door instead of top



FRIGIDAIRE "HOME" FREEZER

openings to eliminate the difficulties of getting food at the bottom, and wire baskets to facilitate handling and separation. W. E. Morrison, general manager of the Deep-freeze Division of Motor Products Corporation, also predicts that another important feature in post-war freezers will be a "low-temperature differential" to eliminate the bother of packaging and sealing foods in moisture-proof paper.

Few manufacturers will make even a guess at post-war prices. Families who have used such a freezer, however, have reported that it paid for itself within a year in food-bill savings. And electric current consumption is said to be little more than that of a household refrigerator.

Kitchen planning for new apartments, according to some enthusiasts, will probably allow for two-temperature units. Meanwhile in old houses, freezing lockers may be installed in the basements, or city dwellers may be able to rent lockers in a new type of neighborhood store dealing exclusively with frozen foods, both uncooked and cooked, and offering quantity discounts. The establishment of one such chain in New York City, Frozen Food Centers, Inc., was announced recently. The first store, including a limited number of lockers, is to be opened within the next four months.

S S S

International Harvester Plans Household Unit

THE International Harvester Co., according to a news note, contemplates entering the household refrigeration field on a large scale after the war. Present plans, it was stated, call for production of both low temperature units and ordinary family size refrigerators, both of which are new features for International Harvester. Several years ago the company started

turning out walk-in type refrigerators for dairy farms. The manufacture of these will be continued.

News that the company has gone ahead with its previously announced intention of organizing a refrigeration division is contained in a quarterly review to the stockholders. The division was created July 1 and Eugene F. Schneider, former Eastern district manager of general line sales, was appointed general manager. For the present, chief emphasis of the new division will be upon meeting the needs of the farm refrigeration field, it is announced.

Service Concern Shows Steady Growth During War Years

COMPLETING its tenth year as a Terre Haute institution, the Refrigeration Service Co., 1225 Wabash Ave., Terre Haute, Ind., owned and managed by Ward C. Neibert, has an outstanding record for having installed and repaired commercial and domestic refrigeration equipment in homes and many of the cafeterias of defense plants in that vicinity.

A full staff of skilled installation and repair refrigeration men is maintained under the personal supervision of Mr. Neibert, despite the calls of war upon the manpower supply, especially those of mechanical abilities. Mrs. Neibert supplements the company staff by helping in the office.

Foodstuffs for the workers at the Terre Haute Ordnance Deport, the Vigo Ordnance Plant and the Wabash River Ordnance Works are kept fresh and sanitary in refrigeration units installed by this company.

Complete rebuilding and overhauling of domestic and commercial equipment is accomplished by the firm with its fully equipped and highly modernized shop. New refrigerators not being available, the concern has nevertheless been able to acquire a full stock of the necessary parts to service any units its customers have.

It is one of the few companies in that vicinity that has been granted a certificate of authority from the War Production Board to obtain materials for emergency servicing of commercial refrigeration.

* * *

SURVEY SHOWS CONDITION OF APPLIANCES IN HOMES

A SURVEY of 4500 homes made by the Office of Civilian Requirements shows that about nine per cent of home owners who had mechanical refrigerators in their homes required repairs during the first three months of this year. The report also showed that only about one-half of the demand for repairs was met.

"The period covered by the survey was the least active season for refrigeration repair," the report stated, which would indicate that there probably was a greater volume of repair work during the present summer season and with still less chance of its being supplied.

Of the household mechanical refrigerators covered by the survey 63 per cent are five years old or older. It is believed that this figure on the age of mechanical refrigerators might hold good for the entire country.

The survey also showed that radios are listed as the item most in need of repair, with vacuum cleaners, washing machines and electric ranges also on the list. Of radios owned in the homes surveyed, 85 per cent were reported in working order, but 28 per cent of the radio owners said they had needed some sort of repair since January 1. About half of these reported that they had difficulties obtaining repairs. Only about eight per cent of the radios covered by the

The versatility, dependable refrigerant control efficiency, compact size, durability, ease of inspection, and other advantages have made A-P Model 207 one of the most popular valves among Refrigeration Service Engineers responsible for thousands of installations. Adaptable to smaller types of units, display cases, ice cream cabinets, sharp freezers, and air conditioning units, it maintains a constant superheat over a wide range of evaporator temperatures. Superheat is readily adjustable from 0° to 30° F. Capacity, from ¼ ton Freon to 1 ton Methyl or Sulphur. Write for complete bulletin and service data.

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survey are not in working order. About half of the radios in use are five or more years old.

On washing machine repairs, 16 per cent of the owners who have tried to obtain repairs since January 1, more than two-thirds were successful. Of these washing machines 95 per cent are in working order, although 72 per cent of them are five or more years old.

URGES CARE FOR REFRIGERATOR

MORE than a half million automatic refrigerators, almost one-third of those in use in New York City, are over-age and are operating inefficiently, Consolidated Edison Company of New York asserts. The company warns householders against wartime waste of electricity and gas, and increased bills.

In normal times, the announcement states, these refrigerators would have been retired and replaced by efficient new models. Virtually no new boxes have been available in the past three years, the company said, and repair parts and expert repairmen have become increasingly scarce because of the war.

Since mechanical refrigerators are not included in the items recently announced for civilian production, refrigerators now in operation may have to remain in use for the duration, the company warned, adding that only the best of care would keep them operating at anything approaching efficient use. Hot weather forces refrigerators to work overtime, encouraging breakdown, the announcement noted, and breakdowns today mean weeks of delay in getting repairs.

According to the utility company tests have proved that refrigerators operating faultily have greatly increased the consumption of electricity and resulted in needlessly high bills.

Consolidated Edison offered these suggestions to keep the refrigerator operating properly: Keep the door shut tightly; check the door rubber, or gasket, by inserting a slip of paper in the opened door, close the door and if the paper can be pulled out easily, the gasket needs replacing. Keep the door shut as much as possible; never let it stand open. Always cool foods and cover all cooked foods before placing them in the refrigerator. Defrost when it is one-fourth inch thick. Call a repairman if the refrigerator motor runs continually.

SECURING TOOLS FOR TRAINEES

IN A recently published bulletin of the National Refrigeration Service Council, Cleveland, Ohio, addressed to Local Coordinators and Instructors, a plan was outlined to expedite the securing of refrigeration tools for potential trainees. The bulletin states:

"Because of the difficulty in obtaining specialized refrigeration repair tools, a plan has been worked out by Mr. Curtis E. Anderson, Chief, Business and Repair Service Branch, Service Trades Division, War Production Board, Washington, D. C., that will be very helpful in procuring tools for trainees.

In order to obtain such specialized tools higher priority ratings are required and three (3) months' time in securing these ratings is also required.

Accordingly, it is suggested to you that at least three (3) months before any of your classes graduate, a list be made up of those tools desired by the trainees. Such a list should show name of the trainee and the exact number and kind of tools that will be required by him. After compiling this list the coordinator or instructor should write a letter certifying that the tools are for a certain number of trainees who will finish their course on (named date) and in (named community).

Then the coordinator or instructor should furnish the complete list of tools required plus his letter of certification to the nearest refrigeration supply jobber or other source of supply, who will in turn arrange to secure delivery. The supply jobber will forward the letter of certification with a WPB-547 application to the War Production Board where arrangements have been made to expeditiously handle same.

It is important that at least three (3) months be allowed to secure the priority application and to obtain delivery of the tools. We believe that this program is a constructive one and will go a long way toward solving the problem of equipping trainees with proper tools."

A. B. O'Toole
Topeka, Kans.

My son, F. B. Michael O'Toole, now on one of the Navy ships, writes, "Dad, please send me some more copies of THE REFRIGERATION SERVICE ENGINEER. I have read all you gave me when home on furlough over and over till I know them by heart."

I am enclosing check for $2.00. If possible, would like you to mail him all copies of R.S.E. to date for this year, and continue subscription for balance of year.

This boy has done refrigeration work with me since he was able to lift up a wrench. He has just passed his 17th birthday, has two years' service in the Navy, made P.O. 3rd class, and has been in four major engagements.

I want to get these copies to him. If you cannot mail them, please let me know requirements necessary.

The Question Box

Readers are invited to send their problems pertaining to the servicing of household refrigerators and small commercial refrigerating equipment to "The Question Box."

USING BRINE TANK FOR EVAPORATOR

QUESTION 615: I do not know whether this is a new wrinkle but it may be of some help to some of the other fellows who are looking for a chance to make use of some of those old brine tank ice cream cabinets but before I go too far in suggesting something untried, I would like your opinion on what I'm about to try.

I have on hand a ⅓ hp. Kelvinator model 400 SO_2 condensing unit and a Nizer Brine tank ice cream cabinet. I wish to use the brine tank from the cabinet for the evaporator in a 5x4x7 reach-in cooler. It is not too well insulated with 3 in. cork and the doors are rather poor. What I would like to know is whether the condensing unit is large enough for the job. What is the best method of temperature control? Will this type of evaporator have enough cooling surface? I might mention that the bottoms of the sleeves are removable. The cooler will be used for cooling bottled goods and should be kept at about 38° F.—average room temperature about 80°. Any suggestions will be appreciated.

ANSWER: I was interested in your proposed application of the brine tank to this refrigerator in cooler. I am a little doubtful, however, that this brine tank will supply sufficient refrigeration, particularly at the temperature of 38° F required in the cabinet. I am also doubtful whether the ½ h.p. unit will carry this load. The brine tank itself and the quantity of brine contained in it would be sufficient; however, this tank contains only a small float valve with rather a small evaporator surface, which we can consider as the prime surface of the evaporator. It is this surface that I do not think is sufficient.

If in some way you could add another 50 feet of ½ in. tubing to the evaporator surface in the brine, you could probably attain the results you require, but I am very doubtful of good results as the evaporator stands. I think too that a cabinet of this size would require either a more modern ⅓ h.p. unit or possibly a ½ h.p. unit. It is difficult to calculate the heat load from the information you have given me, but indications are that the ½ h.p. unit would not carry it.

GRUNOW REFRIGERATOR

QUESTION 616: I have a Grunow refrigerator to repair which will not operate cold enough to kick the cold control automatically off and on. After it runs for a couple of hours, the overload kicks off. I have installed a new Carrene meter, fresh charge of refrigerant and new oil with no better results. What is usually the trouble with these Grunow's? They seem simple enough but I have never been able to repair one so it would stay repaired. The trouble seems to be within the unit and not the extra equipment, for I have been able to repair that. Any information you can give me will be greatly appreciated.

If after I try whatever suggestion you might offer and I still fail, if a piston type compressor of proper size were installed with methyl chloride refrigerant, would the Grunow capillary tube be the proper size and would I have oil logging trouble with the evaporator? I have a complete condensing unit that I could use.

ANSWER: I am of the opinion that the Grunow refrigerator you describe has an inefficient compressor or perhaps the compressor is becoming gummed up with carbon deposits and copper coating to the extent that it is not running as freely as it should and not doing an efficient pumping job.

Where there is a small amount of moisture present in the system a copper coating will deposit on the shiny surface of the compressor cylinder and veins. This copper deposit will build up to the extent that the compressor will have a tendency to bind which may explain why the unit kicks off on the overload.

Lap the veins and clean the surface to a shiny finish. Then reassemble and if there is too much side play in the compressor rotor and veins, it may be necessary to eliminate this by taking up on the side plate. Because

these compressors work on a low vacuum it must be in a highly efficient condition at all times in order to provide an adequate amount of refrigerant. I think it would be possible to install the piston type compressor to replace this rotary type. Your main difficulty would be in fitting it into the space now occupied by the rotary compressor.

I would not suggest changing the system to any other refrigerant because this change would create other difficulties. If the entire unit is discarded and only the evaporator of the present system used, it would be possible to convert to any other refrigerant but I think it would be necessary to change the length of capillary tubing or convert the liquid control to a high side float.

SERVICING LEONARD UNIT

QUESTION 617: I am servicing a Leonard 1738814 (1348547) LS 70 374 37C—10V 25 991 F-12-1 B. It runs all right for a few days, then defrosts itself and runs continuously. It has the correct charge. I have replaced belts and seal. Regardless of what I do to it, it runs all right for a day or so, defrosts itself and then runs continuously. Can you offer any suggestions?

ANSWER: I believe I am correct in stating that this refrigerator is equipped with a highside float as the liquid control and it is my opinion that your trouble is in the highside float. It may be due to air in the system which is accumulating in this float preventing the flow of liquid refrigerant into it. It may be due to a defect in the float itself which occasionally does not properly open or it may be due to foreign matter or moisture in the system which is freezing or clogging the outlet of the float so that there is poor circulation of refrigerant to the evaporator. You have not given me enough information to definitely lay my finger on the trouble but at least I feel sure it is due to operation of the float.

LOCKER PLANT SERVICE

QUESTION 618: I have a locker plant to service, room about 8x20x10 ft. with two sets of plates and two Modulex A-1-2 valves in locker and one valve and four plates in the deepfreeze in the same room and then a chill room on the side 8x10 ft. with blower coil and temperature of 35° to 40°F. Refrigeration is furnished by a 3 hp. Frigidaire unit. An E.R.V.-20 regulating valve is in the line to the chill room. This regulating valve is kept wide open and does not operate and the chill room controls the unit, so at night the chill room gets too cold and the locker room too warm. There are no valves to shut off the line to set the two temperature E.R.V.-20 valves. How can this be adjusted and set so as to keep this locker room cold? The locker is set to shut off at 2 in. Vac. The system has 10 lbs. methyl chloride with balance of Freon 12. It does a better job of cooling with methyl chloride than with Freon.

This 3 hp. motor has burned out the bearings three times and is less than two years old. It seems to run smooth and motor armature is in balance. What can be done for this motor?

I have another smaller locker plant with a 2 hp. Frigidaire unit which is set to shut off at 10 in. Vac. and if the valve is opened more, it freezes back to the pump. This unit is too small as it runs all the time and gets up to 12 to 14°F. during the day. Would it help to open the expansion valve more and set the machine to cut out at, say, 4 in. Vac.? Where should these valves be set on these machines?

ANSWER: It seems that your only difficulty in this locker plant is in obtaining the proper temperature balance from one room to another and particularly between the locker room and the chill room. I can understand that you will have more difficulty here because of the different types of evaporators used and the wide difference in suction pressures. Ordinarily it is not entirely satisfactory to operate two sections on the same unit where there is such a wide difference in suction pressures and it may be that you will always have trouble in maintaining proper temperatures in these two sections.

However, it will not do any harm to try and obtain the proper operating conditions by adjusting the E.R.V.-20 valve. These valves usually have a gauge port included with them, together with a small shut-off valve which shuts off the port from the line while the gauge is being connected. Ordinarily, there are three openings to the valve, all of which are capped; one is the cap over the valve stem, the other a pipe plug where the gauge may be inserted and the third is the cap over the adjusting screw of the valve itself. The gauge port should be on the side of the valve nearest the evaporator it is controlling and your gauge readings will indicate the pressure in that evaporator and in the line leading from the valve to the compressor.

The valve should be adjusted until such pressures are maintained in the evaporator

Henry Diaphragm Relief Valve

Instantaneous Pressure Relief with Fast and Positive Reseating

Design of this relief valve is unique in that it incorporates a diaphragm construction with an unusual seating arrangement. The result is an opening and closing snap-action movement. Large surface area of the pressure actuated diaphragm causes instantaneous relief as compared to gradual opening in conventional spring loaded relief valves. When the pressure in a system reaches the relief point, wire drawing, which may ruin a valve seat, can not take place because there is no slow movement of the valve seat disc in the Henry Diaphragm Relief Valve.

This valve is recommended for protection to a system containing a large charge of freon or methyl chloride refrigerant. It may be employed either for relieving high side or low side to atmosphere. It can also be installed so as to relieve from high to low side of system. It meets the requirements of all existing safety codes. Due to its acknowledged efficiency through dependable performance under all conditions of service, the Henry Diaphragm Relief Valve is today widely used in refrigeration and air conditioning installations of the Army, Navy and Maritime Commission.

The Henry Diaphragm Relief Valve is available in ½" F.P.T., ¾" F.P.T., ⅝" O.D. and ⅞" O.D. Solder connections and at pressures ranging from 90 pounds to 300 pounds per square inch. Each valve is individually adjusted, set at pressures ordered and marked with its rated free air passage capacity per minute. Locking device prevents tampering with pressure setting or changes in setting due to vibration.

FOR FREON and METHYL CHLORIDE REFRIGERANTS

Type 542. With solder connections. Extended tube sockets at inlet and outlet ports prevent transfer of installation heat to internal parts.

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corresponding to the temperatures required in that section.

I am not sure that I can help you on the trouble you are having with the motor with burned up bearings. I don't know why this should happen, unless the motor pulleys are out of line with the compressor or if the belt is adjusted too tight. I presume, of course, that the motor is getting sufficient oil and the trouble cannot be there. If, as you say, the armature is in balance and there is no undue noise in the motor, I would be inclined to look for trouble in the adjustment of the belt.

I don't know anything you can do about the 2 hp. Frigidaire unit in the smaller locker plant because there is nothing to remedy a situation where the compressor is too small for the job other than decreasing the load or increasing the condensing capacity of the unit. The expansion valve should never be readjusted from the adjustment originally made at the factory. Opening the expansion valve would only tend to flood the system back to the compressor and would increase the load on the compressor rather than decrease it. Reducing the cut-out pressure of the pressure control would not possibly help if the compressor has never been able to pump it down to that lower pressure. The machine, as you state, is running continuously at the present time, which indicates it is unable to reduce the pressure to the cut-out setting and a further decrease in the setting would be of no value.

CONTROLLING ICE FORMATION IN MILK COOLER

Question 619: I should like to have some help with regard to setting the low side control on a Carrier-Brunswick milk cooling unit. This compressor is driven by a ⅓ hp. motor using methyl chloride and A-P thermostatic expansion valve for the metering device, and controlling the unit are two No. 250 Detroit controls with a crank case control. The temperature control is set at about 38°F. cut off with a differential of about 5°F. The refrigerant is good, really too good, for it is difficult to remove the cans. When this happens, the service control is pulled and left off until much of the ice has melted. I believe the low side control does not function just right. If an attempt is made to adjust the differential, even a little, the compressor seems to run in cycles hardly long enough to produce refrigeration. It probably runs about half a minute and may be off for five minutes before cutting in again when there is an ice wall an inch or two thick. Of course, if all the ice has melted and the temperature of the water has gone up to about 50°F. this short running does not occur.

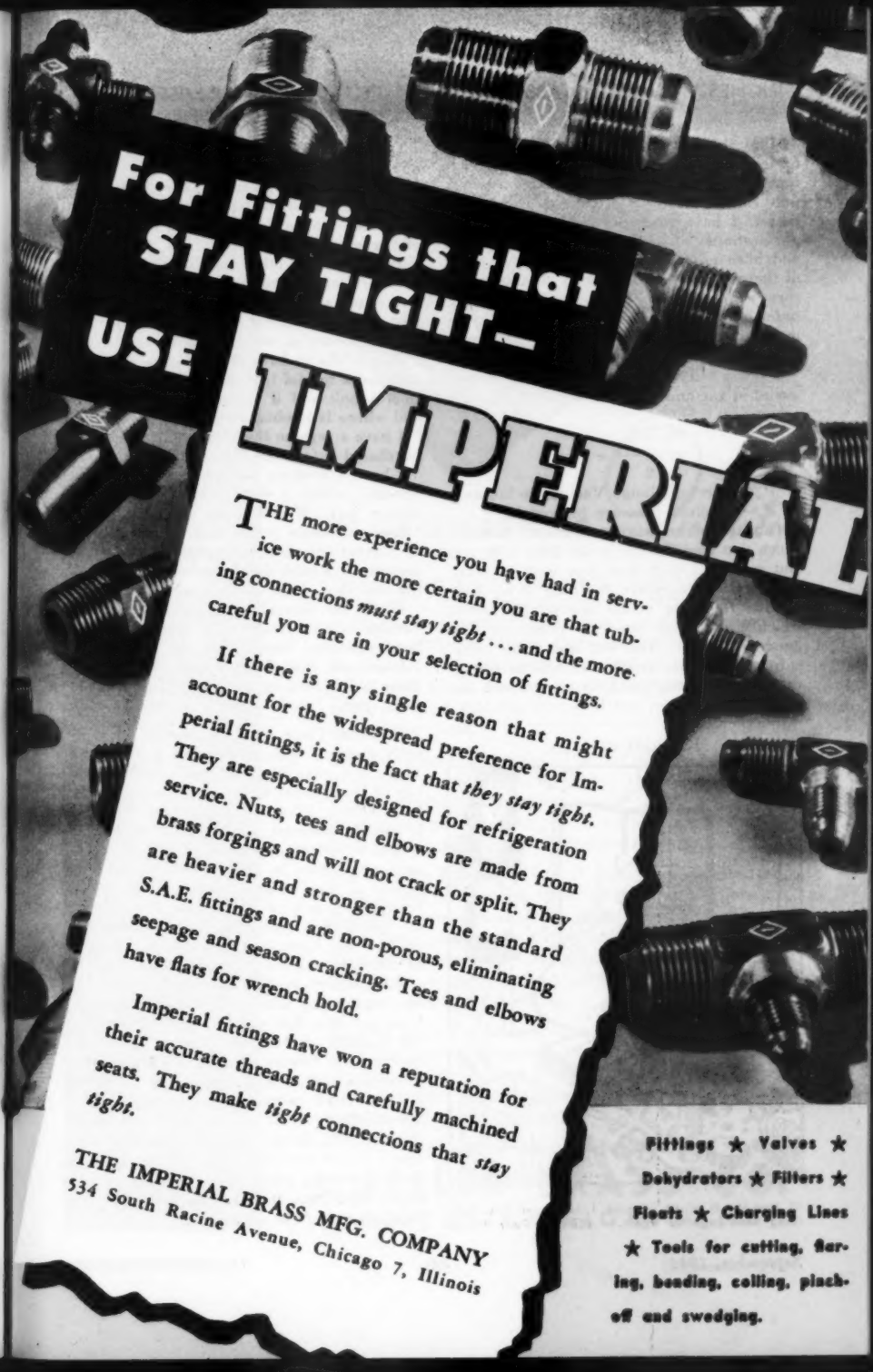
Do you think the control is all at fault? About what should be the normal back pressure setting for this control, both cut-in and cut-out at 38 to 40°F. water temperature? Will it be possible by adjustment to keep this temperature and yet form a small amount of ice on the coils?

Answer: As I understand your question, you wish to maintain the present temperature of 38° to 40° in the milk cooler but in some way prevent the ice from forming so heavily around the coils. I am not sure that you can maintain this temperature in the water bath when you reduce the coil temperature in order to reduce the ice formation. However, it is just possible that you can. Ordinarily any increase in the evaporator temperature which is necessary to keep down the ice formation will also produce an increase of water temperature. However, this statement goes only so far and depends to some degree on the extent of the ice formation.

Ice forms an insulating blanket around the evaporator. Since the melting temperature of ice is 32°, the surface exposed to the water is never colder than 32°. No matter how low a temperature you have in the evaporator, the water never comes in contact with a lower temperature than 32°. All that can happen is that the blanket of ice around the coil will increase in thickness.

The temperature of the evaporator, therefore, can be increased to such a point where ice will form during the running period but will melt off during the idle period. The evaporator temperature should be around about 30° and the control should have a wide enough differential so that ice will be permitted to melt from the evaporator before the machine starts on a new cycle.

It is a little difficult to state definite pressures because the rate of circulation of the water in the tank together with the amount of evaporator surface employed will change this pressure. However, I think that a little experiment will soon bring you to the proper settings. No attempt should be made to change the differential of the pressure control in this case but rather the entire range, both the cut-out and cut-in pressures should be raised.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THE more experience you have had in service work the more certain you are that tubing connections *must stay tight* . . . and the more careful you are in your selection of fittings.
If there is any single reason that might account for the widespread preference for Imperial fittings, it is the fact that *they stay tight.* They are especially designed for refrigeration service. Nuts, tees and elbows are made from brass forgings and will not crack or split. They are heavier and stronger than the standard S.A.E. fittings and are non-porous, eliminating seepage and season cracking. Tees and elbows have flats for wrench hold.
Imperial fittings have won a reputation for their accurate threads and carefully machined seats. They make *tight* connections that *stay tight.*
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Fittings ★ Valves ★ Dehydrators ★ Filters ★ Floats ★ Charging Lines ★ Tools for cutting, flaring, bending, coiling, pinch-off and swedging.

INCHES VACUUM TO ABSOLUTE PRESSURE

QUESTION 620: Is there a simple formula for converting inches of vacuum gauge readings to absolute pressure? If not, is there a publication that would have a conversion table? I have read quite a few very good publications on refrigeration engineering and have noted that most of them give all of their gas pressure tables in absolute pressure which does not have much meaning unless they are explained so that a service man can understand when we look at a common every day compound gauge.

ANSWER: The formula for converting inches of vacuum gauge readings to absolute pressure is

$$\frac{30 - P_m}{2} = P_a$$

P_m—Mercury Gauge Vacuum in inches

P_a—Absolute pressure in pounds

This is not necessarily a simple formula which you could carry in the field with you and work out each time you wish to make a conversion, therefore, it would be my suggestion that you utilize one of the tables which show both absolute pressures and gauge readings. You will find many pressure temperature relation charts on refrigerants which contain both gauge and absolute readings.

LAUGH-BOMBS.

"I brought it along in case I can't get this darn thing back together again." *(Chicago Daily News)*

CAN THE METER-MISER BE CHARGED IN FIELD

QUESTION 621: Is it true that you cannot add a refrigerant charge to a Frigidaire Meter Miser refrigerator? The indications were that this particular unit was low on refrigerant. I have never had the opportunity of servicing one of these units, although I have serviced all other makes. The idea that a service man cannot perform such a service strikes me as odd. If you have any information as to the operating back pressure and head pressure at the various temperatures, I should like to have that information; also whether a special tool is required to service such a unit and if such a tool is available and where is it obtainable?

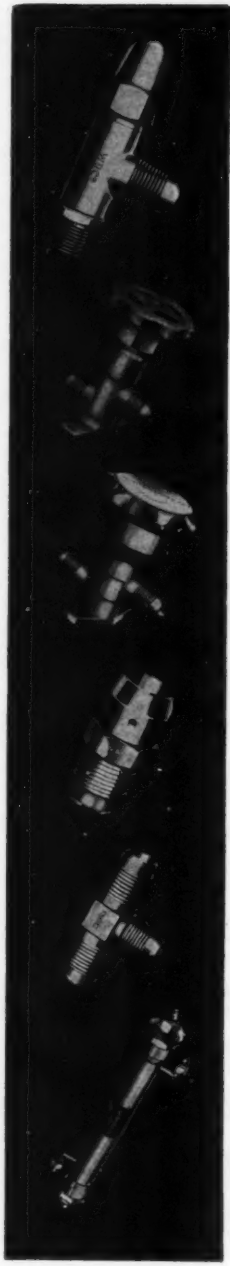
I have a regular Hermetic kit but this was purchased before the Meter Miser came out.

I have a medium temperature ⅓ hp. unit (Freon) which I should like to use for a freezer box. Would it be advisable to increase the motor pulley size to get a 10 or 15 percent increase in speed to increase the capacity? Would this have any effect upon the capacity of the condenser?

I put out several gasoline powered condensing units which with unusually high head pressures would stall the gas engine. I found out that the governor of these engines had opened up and after I had reduced their speed, I had no more trouble.

ANSWER: These units can not be conveniently charged with refrigerant in the field. There is a charging port located under the top of the cabinet to which an adapter can be attached. However, the plug in this port is usually soldered in place and sometimes resists all efforts to remove it. It is necessary very often to drill a hole through the center of this plug in order to charge in refrigerant and, of course, in this process any refrigerant remaining in the system will be lost and there is the additional danger of moisture and air entering the system.

With regard to the ⅓ h.p. unit which you are considering using on a freezer cabinet, I am not sure that you will need to increase the capacity of this unit to take care of the average size freezer used in the home. Ordinarily a unit of ⅓ h.p. would take care of a large sized cabinet used for home purposes. However, if it is necessary, I don't think it will do any harm to step up the speed by 10 per cent and because of the lower operating pressure encountered in this application there should be no difficulty with the capacity of the condenser.



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R.S.E.S. Chapter Notes

TWIN CITIES CHAPTER

St. Paul, Minn., Aug. 15—President C. A. McCafferty in opening the meeting, introduced Mr. Larson of Faribault, Minn.

A report on the proposed license ordinance was presented by Earl Sigafoos and after discussion a motion by L. Bradison and seconded by V. Hanson to accept the proposed ordinance was carried.

Harry Schaeffer was appointed to the legislative committee.

Sept. 5—Although rain somewhat marred the picnic, the affair was a success and arrangements were considered for next year's event.

Applications for membership of Rex Ashcroft, Herbert F. Tjosvold, Harry S. Patterson, Arthur Nash and Paul Skarman were favorably acted upon.

As Messrs. Asproth, Nash, Ashcroft and Tjosvold were in attendance, the objects and obligations of association membership were explained to these new members.

TRI-STATE CHAPTER

Huntington, W. Va.—Instead of holding regular meetings as was done during the winter months, the members of the Tri-State Chapter and families get together for picnic suppers each four weeks. These picnics are held at local parks where the children can have an opportunity to enjoy themselves.

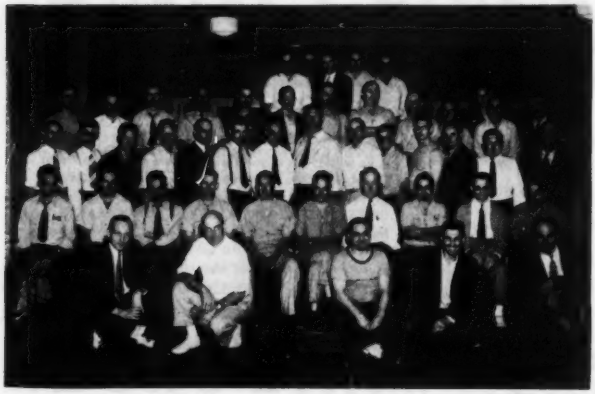
Largely through the efforts of Claude A. Brunton, the Tri-State Chapter has increased its membership considerably. The following new members have been added to the chapter since the first of the calendar year: Sgt. Robt. G. BuShea, James W. Fountain, R. H. Amick, M. A. Nuzum and Dorman B. Sargent. Reinstated members are as follows: Ben DeRond, Jr. and Joe Valdes.

PITTSBURGH CHAPTER

Pittsburgh, Pa., July—The Chapter held its annual basket picnic at the Flyer's Club, County Airport, Sunday, July 30th. All members and many of their friends attended the picnic. The committee arranged games

and contests for men, ladies and the children. President Bortz called a meeting during the afternoon to transact such business as had accumulated up to that time. It was also arranged at this meeting that in August, a corn roast would be held at the Flyer's Club at which time another business meeting would be held.

It was suggested that the next meeting be held at the new county beach at Lake Lansing and that wives and families of the members be invited. It was decided to make a picnic of the meeting, holding only a short business session. A light luncheon was served during the meeting, which adjourned at an early hour.



Central New York Chapter as guests of W. A. Case & Son Mfg. Co., Syracuse, N. Y., hear S. R. Hirsch, Chief Engineer of Brunner Mfg. Co. discuss low temperature applications.

CENTRAL NEW YORK CHAPTER

Syracuse, N. Y., August—President Arthur Snyder called the meeting to order and after a short business meeting, the speaker of the evening was introduced in the person of S. R. Hirsch, Chief Engineer for the Brunner Manufacturing Co. Mr. Hirsch discussed the characteristics of low temperature applications and general problems encountered, methods used to prevent and correct these troubles, moisture troubles, low side evaporators, use of F-22 refrigerant in standard units and oil return problems. It was a most interesting discussion and the members received a great deal of information from it. The members, during this meeting, were guests of the W. A. Case & Son Mfg. Co. Bert Goodhue of the Case Co. together with some of the R.S.E.S. members arranged a buffet lunch and refreshments.

WOLVERINE CHAPTER

Lansing, Mich., August 14—At this meeting, the annual election of officers resulted in the following: *President,* Leslie Lockwood; *Vice-President,* Cecil Stevens; *Secretary,* Rial Kellogg; *Treasurer,* Sidney Ferrin; *Sergeant-at-Arms,* Ken DeKubber.

MOTOR CITY CHAPTER

Flint, Mich., June 27—The meeting was held in the service room of the Genesee Dairy Co. and the main business of the evening was the annual election of officers resulting in the following: *President,* Owen Dobbs; *Vice-President,* Norris Gunnell; *Secretary,* Wilbur Henderson; *Treasurer,* Clare Babcock; *Sergeant-at-Arms,* William Holmes.

July 11—The newly elected President, Mr. Owen Dobbs, presided over this meeting which was held at the home of one of the members. A motion was made that a picnic be held for John Heffy, a member of the Chapter, who is now home on furlough from Great Lakes, Ill. It was suggested that the picnic be held at Alton Lifsey's cottage at North Lake.

On the educational program, Al. Berglund of Frigidaire explained the policy of Frigidaire in regard to refrigeration service men. Following this explanation, David Fortune presented an interesting talk on the problems of servicing the Grunow refrigerator.

The Motor City Chapter has inaugurated an interesting plan of educational programs which, thus far, has worked out very satis-

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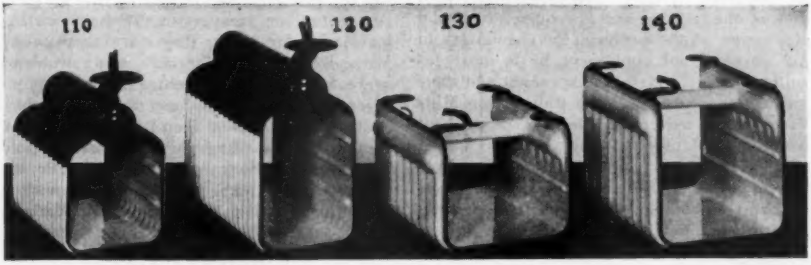

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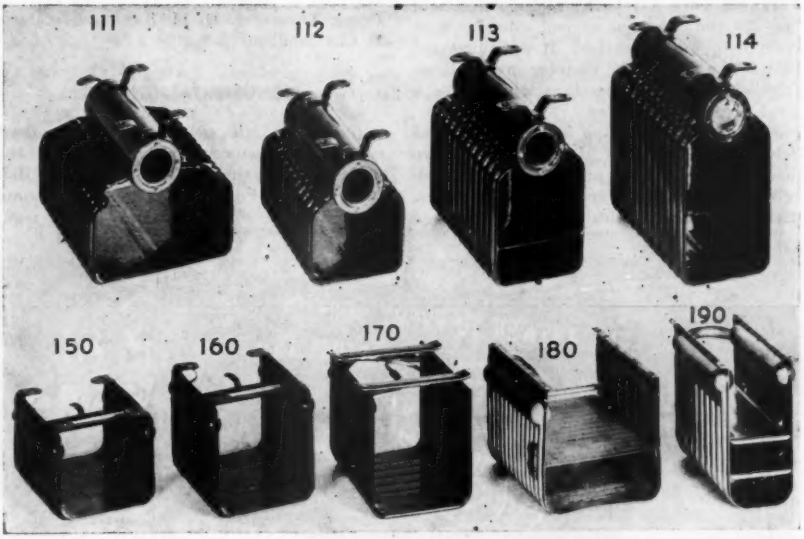

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factorily. Each member in alphabetical order is given charge of the educational portion of the meeting and is required to give a discussion of the problems he encounters in the servicing of equipment he is most familiar with. To date, the speakers and their subjects have been: Clare Babcock on Mills freezers for ice cream, Bert Clark on Kelvinator and Universal cooler, Lester Gettler, now in the Navy, on Gibson refrigerators, Owen Dobbs on Kelvinator ice cream freezers and David Fortune on Grunow refrigerators.

KANSAS CITY CHAPTER

Kansas City, Mo., June 7—President C. R. Visger presided over the meeting held at the Temperature Engineering Building. M. L. Ferguson gave a report of the picnic held May 28 and reported a good attendance in spite of the rainy weather. It was suggested that in the future, the Chapter invite all refrigeration men to meetings which have a good program scheduled.

July 5—This meeting was held at the Schreiber Institute of Refrigeration. Two new applications for membership were received from Nelson Warren and Glen Bailes. These members' applications were approved and the members welcomed by the Chapter. On the educational program for the evening, Mr. Schreiber arranged a discussion on expansion valves, how they vary in capacity with different refrigerants and problems were worked out showing the amount of Freon available compared to methyl chloride. The discussion then turned to the best method of installing valves. Both thermostatic expansion valves and automatic expansion valves were discussed in connection with the operation of domestic applications.

LOUISIANA CHAPTER

Baton Rouge, La.—At a recent meeting of the Chapter, officers for the coming year were elected. They are as follows: *President,* O. J. Crow; *Vice President,* Earl C. Fenn; *Treasurer,* D. H. Swails; *Secretary,* P. C. Chandlee.

MONUMENTAL CHAPTER

Baltimore, Md., June 14—Mr. Goodhart made the announcement that in the future, notice of meetings would appear in the Baltimore News Post. Mr. Ottenheimer complained of the small attendance at the regu-

lar meetings and suggested that members help out in getting others to attend. Upon Mr. Ottenheimer's suggestion, the annual dues were increased from $5.00 to $10.00 per year with the provision that all members who attended six meetings during the year would be refunded the additional $5.00. All members living outside of the Baltimore city limits are to be excluded from this increase. The annual election of officers took place at this meeting with the following results: *President,* Jack Ottenheimer; *Vice-President,* Harry Eklof; *Secretary,* A. C. Huber; *Treasurer,* Harry Goodhart; *Chairman of Educational Committee,* Geo. Roche; *Executive Committee,* William Mattheis and H. Makosky; *Chairman of the Entertainment Committee,* Jack Frazier. The meeting adjourned with refreshments being served.

MILE HIGH CHAPTER

Denver, Colo., Aug. 14—The meeting was held in the Rocky Mountain Electrical League Office and was called to order by President Chas. Land. Two new members, E. H. Pemberton and Lloyd M. Reed, were welcomed to membership in the Chapter. As an easy means of getting acquainted, name buttons were distributed to all members with a request that they be worn at each meeting. A membership committee, consisting of Leonard Martin, Roy Roush and C. J. Connell was appointed by the President, who also appointed an educational committee comprised of the following: L. W. Barley, W. M. Bowman and J. M. Richey.

MONTGOMERY CHAPTER

Montgomery, Ala.—The Montgomery Chapter has recently become extremely active after a period of comparative quietness, during which its membership lagged. In recent months, new officers have been elected and many new members have been secured. The Chapter is now enjoying a great deal of activity and cooperation by all its members and plans are being made now for the busy winter season. It is expected many interesting educational programs will provide members with much useful information. Much of this planning is being done at the present time by the officers and Board of Directors so that programs will be available for meetings in the very near future.

MADISON CHAPTER

Madison, Wis., Aug. 10—President A. L. Robertson reported on a job that he had changed over from F-12 to F-22. The reason for the change was that a lower coil temperature was desired to overcome excessive heat leak due to wet insulation. The job used Dole plates as a low side, thermal expansion valves and solenoids for refrigerant control and a pressure control to start and stop the machine. After the F-22 was installed, the plate temperature dropped 15 degrees, using the same pressure control setting. The head pressure was set at about 185 lbs. by adjusting the water regulator on the machine. The Freon TXV's were left on the job and worked O.K. with the F-22 refrigerant. Mr. Robertson called attention to the fact that the highside was considerably overpowered—that is, the electric motor was larger than required for use with Freon 12 and no check was made of the additional power required to operate the highside using F-22.

A short discussion followed on the chemical action between methyl chloride and aluminum. No one present had any special knowledge of the subject but a few theories were presented and some information gained.

The annual election of officers resulted as follows: *President,* James Hughes; *Vice-President,* Walter E. Krause; *Secretary,* Fred Barney; *Treasurer,* V. J. Sweeney. A motion was made by A. L. Robertson and seconded by Lee Miles that the local chapter by-laws be amended to provide that the board of directors shall at all times be composed of the Past President, the President, Vice-President, Secretary and Treasurer. The motion was carried.

It was reported that the picnic was held at Madison, Tenney Park, on Sunday, August 13th. There were 92 people present, including a delegation of about five families from The Rockford Chapter. There were attendance prizes for the grown-ups and games for the children. Late in the afternoon, sides were chosen for a game of softball, which is always held at the annual picnic. The final score was 18 to 16, which is a funny looking baseball score but a lot of fun.

SAN DIEGO CHAPTER

San Diego, Calif., August 10—The meeting was held in the regular meeting rooms at the Anderson Refrigeration Service Building. Eighteen members were present,

which was considered a good turnout because of the warm weather and consequent rush in the refrigeration service business. Most of the time was taken up in discussing plans for future meetings and for several week end fishing parties. A large number of the membership are ardent deep-sea fishing fans and this sport has been somewhat curtailed recently but it is beginning to open up again. They intend, if at all possible, to go down the coast to Ensenada, Mexico.

* * *

Mr. and Mrs. John K. Bush of Lockport, New York, are the proud parents of a baby boy born June 14th, whom they have named John Kenneth, Jr. Mr. Bush is a member of the International Board of Directors of the R.S.E.S.

* * *

Ladies Auxiliary

KANSAS CITY AUXILIARY

Kansas City, Mo., June 7—Mrs. R. E. Meeker, President of the auxiliary, called the meeting to order in the offices of Temperature Engineering Corp. Minutes were read and accumulated correspondence discussed. Announcement was made that Mr. and Mrs. E. L. Tramposh have a new son named Kenneth Eugene and born May 29. Congratulations were extended to the Tramposh family and Mrs. F. C. Smith was instructed to procure a suitable gift. The meeting adjourned early so that the ladies could attend the showing of a picture at the men's meeting, after which games were played by the ladies until the meeting was adjourned.

TWIN CITIES AUXILIARY

Minneapolis and St. Paul, Minn., July 12—The ladies met at the Granada Cafe for a delicious luncheon. The business meeting was held after lunch, at which time the constitution and by-laws were thoroughly discussed. Mrs. Ingersoll invited the auxiliary to meet in her home, at which time it was decided to discuss picnic plans.

August 1—Two new members presented their applications at this meeting which were duly accepted. Members of the Twin Cities Chapter joined the ladies for coffee and a social hour followed the business meeting and it was at this time that a joint committee of the ladies and men was appointed to arrange for the forthcoming picnic.

New and Improved Appliances

Information contained in this department is furnished by the manufacturer of the article described and is not to be construed as the opinion of the Editor.

New Adjustable Tool Holder

A NEW adjustable tool holder with a vise grip for use in lathes, shapers, and planers is announced by the Robert H. Clark Company of Beverly Hills, Calif. The exclusive Clark principle of adjustability makes possible the use of any of four or more sizes of tool bits in the same holder instead of requiring a separate holder for each size thus saving the mechanic's time by enabling him to change bit sizes without changing holders. Models available are the 15° sloping cutter channel type and the horizontal or parallel channel type in both right and left hand offset. Each type is available in several shank sizes.

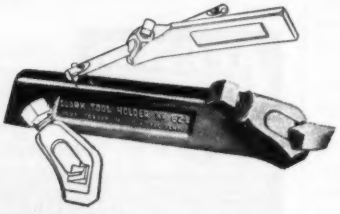
In addition, the Clark tool holder has a special vise grip jaw which has a unique clamping action for holding the bit vertically and horizontally with pressure evenly distributed over the entire holder channel, thus preventing tool bit breakage. It completely eliminates the possibility of a pocket or sag developing in the bottom of the holder channel which the manufacturer claims is a frequent source of trouble when tool bits are clamped with a screw contact at a single point. The shape and position of the head of this new tool holder affords the operator an unobstructed view of the tool bit cutting edge.

This same "vise grip" offers another important saving by rigidly and firmly holding very short tool bits, thus effecting economies by using up short tool bits which would otherwise be scrapped. Square, round, out-of-round, undersize or dual narrow bits for cutting-off or forming operations, all are held equally rigid. This ability to hold narrow tool bits saves much time and avoids tool steel waste from grinding square bits to narrow shapes for cutting off and special turning, grooving, threading, and facing operations, since tools of the correct width and shape may be used without difficulty.

These new Clark Tool Holders are especially suitable for using Stellite and other extra-hard cast alloy tool bits, since the even distribution of pressure in the holder will prevent breakage of these brittle and expensive alloys that is frequently caused by single point clamping methods.

It is claimed by the manufacturer that the parallel channel models will first, properly hold carbide cutters and provide the required maximum frontal support for the carbide cutting edge; second, will securely hold round boring bars for all boring or inside threading operations; third, will securely hold round or square threading tools for outside threading operations.

Clark Adjustable Tool Holders are drop forged of tool steel. They are heat-treated and hardened for maximum resistance to wear, especially in the holder channel directly under the clamping device to prevent worn pockets in the cutter channel.



Clark adjustable tool holder.

* * *

Self-Flaring Coupling for Plastic Tubing

THE first self-flaring coupling for flexible plastic tubing has just been announced by Packless Metal Products Corporation, 31 Winthrop Avenue, New Rochelle, New York. No flaring tools are required. The flare is formed as the members of the coupling are screwed together in one simple operation, assuring uniform walled flare, with no thinning toward the end to weaken the tube. The plastic tubing is not preheated.

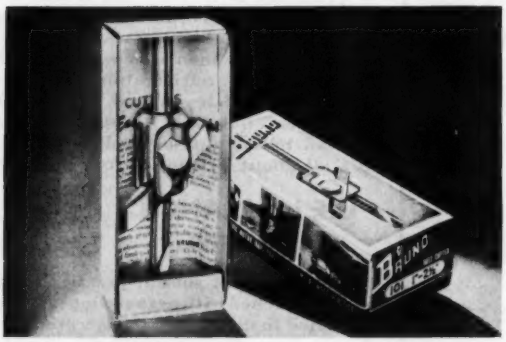
It is stressed by the manufacturers that the construction, by providing a union effect, eliminates twisting and distortion of the tubing in installation, as well as split ends. Only the simplest of shop tools are required and assembly may be made right at the job. Coupling may be reused indefinitely. For tube sizes ¼ in. to ⅜ in. O.D. Descriptive literature available from the manufacturer.

* * *

New Hole Cutting Tool Announced

A NEW all-purpose adjustable hole-cutting tool is announced by Bruno Tools of Beverly Hills, California. This unique new tool, manufactured by specialists in the field of fine cutting tools, quickly cuts smooth holes in wood, steel, brass, hard rubber, aluminum, fibre, plastics and problem materials which

might necessitate use of torches or others expensive equipment. Two sizes are available, each equipped with an easily re-sharpened High Speed steel blade. One model cuts holes to any diameter from ⅝ inch to 1¼ inch through ⅛ inch thickness. The other model covers all expansions from 1 to 2½ inches through thicknesses up to ⅜ inch. The tools are designed to operate in light drill presses, portable drills, or breast drills and are also available with square shanks for use in hand braces.



New adjustable hole cutting tool—Bruno Tools, Beverly Hills, Calif.

The Bruno adjustable hole cutter is designed on a new principle which permits easy, yet extremely accurate adjustment. It consists of a drill which starts the hole and also serves as a pilot for the tool, a hardened body with a milled slot into which is set a specially grounded High Speed steel tool bit, and a hardened and ground shank. Adjustment is obtained by loosening the hexagon bolt which holds a firm locking clip, and sliding the blade to the correct distance from the pilot.

Thickness capacity of the tool varies with the type of material being worked. Metals up to ⅜ inch thickness are cut quickly and smoothly. Wood, plastics, and compressed materials may be cut to much greater thicknesses, in most instances the thickness capacity being unlimited.

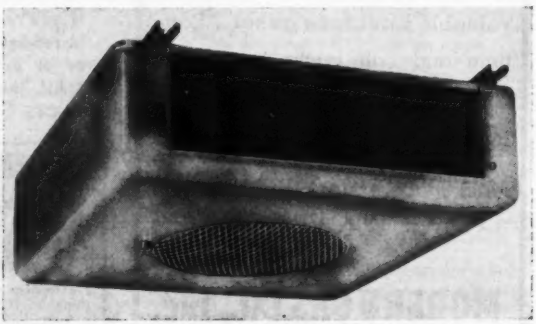
Spasaver Air Coolers

TO MEET the demand for cleanliness and attractive appearance in ceiling-type horizontal coolers for cold rooms and large refrigerators, a new series of Spasaver air coolers, housed in streamlined white enamel cabinets, suitable for all refrigerants and ready for installation, is offered by Drayer-Hanson, Inc., 738 East Pico Street, Los Angeles 21, Calif.

Models in ten different sizes are available, designed for use in institutions, restaurants, food processing plants and similar fields where cleanliness and sanitation are important. They are applicable to a wide variety of installations, from back bars to large cold rooms.

Equipped with new type propeller fans, units operate with practically no noise. Coils are of the fin and tube type, equipped with exclusive D & H kinetic type refrigerant distributor. Motors are slow speed totally enclosed ball bearing—115 volt, single phase, 60 cycle—requiring no lubrication after leaving factory.

Informational catalog with complete specifications and performance data is available upon request to Drayer-Hanson, Inc.



Spasaver air cooler.

NEWS

ERNEST O. HENSE has joined the staff of the New Air Conditioning & Refrigeration Service Co., 6946 Stony Island Ave., Chicago, Ill., as a field consultant and supervisor. Mr. Hense comes to his new position from the Refrigeration Maintenance Corp. of Chicago, serving there as a supervisor in the loop territory for the past five years. Previous to that connection he served for five years with the Russell Corp., Chicago.

THE SERVICE REFRIGERATION Company has been organized at Modesto, Calif., by Joe Shapro and Othel Robbins. Both men have had more than 20 years' experience in installation and repairing of refrigerator equipment. Their shop is located at 600 H St.

THE FOSTER SUPPLY COMPANY, Buffalo, N. Y., has purchased the three-story brick building at 1071-1081 Main St. in Buffalo and will move there about October 1. The firm deals in air conditioning equipment and refrigeration supplies at wholesale. Purchase price was set at $40,000.

REMA DIRECTORS GUESTS OF ANSUL CHEMICAL CO. AT MARINETTE, WIS.

Ansul Chemical Company, Marinette, Wis., was host Thursday, August 17, to the directors of REMA, of which F. J. Hood, Ansul Secretary and Treasurer, is Vice President. The directors met to discuss important subjects and problems pertaining to the industry. Those who attended the meeting were, Front Row (l. to r.): F. J. Hood, Vice President, E. M. Flannery, A. B. Schellenberg, President, R. O. White and C. H. Benson. Back Row: R. H. Luscombe, H. F. Spoehrer, J. A. Strachan and R. K. Hanson, Secretary-Treasurer.

NEW COLUMBUS CONCERN

A CHARTER has been granted to Huffman's Inc., at Columbus, Ohio, to engage in the sale, manufacture and servicing of air conditioning and refrigerating equipment. The new concern will be headed by Harold Huffman of Zanesville, Ohio.

* * *

WEATHERHEAD OPENS CHICAGO SALES OFFICE

THE opening of a direct Chicago sales office on September 1st, located in the Pure Oil Building, Wacker Drive and Wabash Avenue, is announced by H. Church, vice president in charge of sales of The Weatherhead Company, Cleveland.

The new office will more conveniently serve the midwest territory, and will be headed by Charles T. Craig, formerly director of purchases for the company, working with Robert A. Lennox and C. V. Landwerlen, Weatherhead sales engineers.

Craig was born in Bridgeport, Ohio, and attended Brown University. Formerly connected with the Otis Steel Co. and the Hutchinson management of the Pioneer Steamship Co., he has been with Weatherhead for the past 13 years. He is a member of the Purchasing Agents Association, and the Society of Automotive Engineers.

Lennox attended Wayne University, and has seen engineering service with Evans Products, Temprite Products, the U. S. Rubber Co., and the Norge Corp., where he was engineering division director. A member of the American Society of Mechanical Engineers and the Society of Automotive Engineers, Lennox joined Weatherhead in 1939.

Landwerlen, a native of Shelbyville, Indiana, came to Weatherhead from the Electric Autolite Co.

* * *

KEROTEST AWARDED 5-STAR MARITIME "M"

THE United States Maritime Commission has awarded Kerotest Manufacturing Company a fourth gold star to add to its Maritime "M" Pennant, symbolizing the renewal of the "M" award for an additional six months period. This new honor makes the fifth award to Kerotest from the Maritime Commission for excellence in production of equipment for the Victory Fleet Program.

Admiral H. L. Vickery, Vice Chairman of the U. S. Maritime Commission, said in his notification of the award to Edward G. Mueller, Kerotest president: "To each and every one of the employees of Kerotest who share in the winning of this award, I extend the appreciation of the Maritime Commission for their noteworthy contribution to the Victory Fleet Program.

"As our fighting forces press forward the attack on Berlin and Tokyo and greater burdens are placed upon our merchant fleet, it is my sincere hope that your company will continue to demonstrate the teamwork and cooperative effort so vitally needed to win this war."

Kerotest was first awarded the Maritime "M" Pennant with a single gold star in August 1942. A second star was added in February 1943, and subsequent additional stars were awarded in October 1943 and March of this year.

STAFFORD JOINS STAFF OF HERMAN GOLDBERG COMPANY

APPOINTMENT of Willis Stafford to the expanding field organization of the Herman Goldberg Company has recently been announced. Well known and widely experienced in the refrigeration service field, Mr. Stafford is chairman of the National Publicity Committee of the Refrigeration Service Engineer Society, and a past National Director. He is also a member of the American Society of Refrigeration Engineers.

WILLIS STAFFORD

Before joining the Herman Goldberg staff, Mr. Stafford resigned his post as Assistant Chief Instructor at Commercial Traders Institute in Bloomington, Illinois, where he trained U. S. Army Quartermaster Corps personnel to maintain army refrigeration equipment. Previously he was connected with the Detroit Lubricator Company, as a Field Engineer covering design and application of that company's products. Having at one time operated his own refrigeration business at Aurora, Illinois, he is thoroughly grounded in the problem of service men.

In his new capacity, Mr. Stafford will engage in sales engineering and development for manufacturers represented in the field by the Herman Goldberg Company. This group includes Ansul Chemical Company; Ranco, Inc.; Chicago Seal Co.; McIntire Connector Co.; and Standard Refrigeration Co.

DOEPEL JOINS LYNCH MFG. CORP.

THE appointment of W. A. (Wally) Doepel as district sales manager of the Pacific Coast District has been announced by R. L. Sears, sales manager of the Lynch Manufacturing Corporation of Defiance, Ohio. Wally Doepel started in the automotive field back in 1923, working in an auto parts jobbing house. He has advanced through various positions in the sales and distributor field and was, prior to his coming with the Lynch Manufacturing Corporation, Assistant to the Vice-President of Thompson Products, Inc. Mr. Doepel's territory will cover the States of Arizona, California, Utah, Nevada, Idaho, Montana, Oregon, Washington and British Columbia.

W. A. DOEPEL

McDOUGALL SOUTHEASTERN FIELD ENGINEER FOR ALCO

BEN M. McDOUGALL has recently been appointed field engineer for the southeastern territory of Alco Valve Company, with headquarters at Atlanta, Georgia. This territory includes Georgia, Florida, South Carolina, Alabama, North Carolina, Mississippi, Louisiana and east Tennessee.

Mr. McDougall became associated with Alco in 1940 when, with headquarters in New Orleans, he served the refrigeration industry in several southern states as manufacturer's agent.

He later moved to Birmingham, but early in 1943 this office was closed because of war conditions. Mr. McDougall then came to St. Louis, where he has been doing test engineering work in Alco's refrigeration laboratory.

He was born in Franklinton, Louisiana. In 1932 he was graduated from Southwestern Louisiana Institute at Lafayette with a degree in engineering. While an undergraduate he was president of Sigma Pi Alpha and treasurer of the student body.

Alco Valve Company's Atlanta address is 423 C. & S. National Bank Building.

PROVIDES ESSENTIAL SERVICE IN SUPPLYING USED PARTS

"'KEEP 'em running under any circumstances' has been our job during this period of critical material shortages and the difficulty in securing new equipment," says Leo Pochter, owner of the Acme Refrigeration Parts Co., 5217 W. Madison St., Chicago 44, Ill. He stated further, "We have had many anxious moments when we realized how important each order was in maintaining some equipment some place. Having had the practical experience of operating as a service company over a period of years, we knew the problems of the individual service company in maintaining a satisfied customer."

The Acme Refrigeration Parts Co. includes in its service the sale of used evaporators and high side floats which have been completely overhauled. Another important department is the repairing of valves and cold controls. Many service companies have taken advantage of Acme facilities for refinishing porcelain evaporators and this department has shown a steadily increased growth. The evaporators are reporcelained in blue and because of the large number kept in stock, immediate shipment can often be made on an exchange basis. The department also maintains facilities for the repair of stainless steel evaporators.

COMMERCIAL TRADES INSTITUTE IN LARGER QUARTERS

NEW and larger quarters for training in refrigeration and air conditioning maintenance and service is announced by The Commercial Trades Institute, 209 W. Jackson Blvd., Chicago, Ill. The Institute, formerly under contract with the U.S. Army for Refrigeration training of enlisted men, also operates schools in Birmingham, Ala., and Bloomington, Ill.

According to R. C. Anderson, manager, the move to larger quarters in Chicago was made necessary by two factors. First, the desire to add an even greater variety of equipment for instruction purposes to the already very complete laboratory; and second, the increased interest among war workers and ex-service men in the refrigeration and air conditioning fields.

The high caliber of men undertaking training in this field should prove to be a distinct help to the refrigeration and air conditioning industry in its efforts to develop a sufficient number of trained service men to keep pace with post war expansion.

PENN ELECTRIC SWITCH CO. NAMES BUCHEN

THE BUCHEN COMPANY, Chicago, has been appointed advertising agency for the Penn Electric Switch Co. of Goshen, Indiana, manufacturers of automatic controls for heating, refrigeration, pump and air compressor service as well as safety controls for internal combustion engines. In announcing the appointment John R. Netedu, advertising manager of the Company, said:

"We will continue to use the trade and engineering publications serving the heating, air conditioning and refrigeration industries. In addition, we will carry strong campaigns in publications going to management. We are of course engaged at the present time in planning our products and marketing strategy for the time when we can again return to civilian markets. We will bring to our old markets improved automatic control devices which will embody the knowledge gained from our research and experience in manufacturing controls for the armed forces.

"With the dislocation of normal channels of distribution, together with the necessity for educating new men who are entering the control field—manufacturers, jobbers, and dealers—advertising assumes greater importance than ever to the Penn Electric Switch Co."

SYNTHETIC RUBBER RELEASED FOR DOOR GASKETS

AN announcement from Jarrow Products, Chicago, Ill., states that Buna-S has been released for refrigeration door gaskets. Early in 1942 rubber was restricted for all but very critical uses. Reclaimed rubber was released for use in refrigeration door gaskets. At that time, Jarrow Products went to their jobbers and manufacturers

with this story and stated it was the first time in their history that they were selling something to the public which did not and would not give satisfactory service. As time passed by, it was necessary for the reclaimers of rubber to start to reclaim "reclaimed rubber." With this process there was a further deterioration in the quality of the door gaskets.

Recently, the War Production Board released Buna-S for refrigeration door gaskets. Buna-S, it is believed, will give as satisfactory results as crude rubber. It has a tear strength equal to crude rubber and will resist abrasive action slightly better. In resistance to greases, fats and oils, it is superior to crude rubber. This will be available through jobbers within the next 90 days.

GENERAL CONTROLS NEW YORK BRANCH MOVES

THE New York Factory Branch of General Controls, Glendale, Calif., manufacturers of automotic pressure, temperature and flow controls, has occupied new and larger quarters in the Architects Building, 101 Park Ave., New York City. According to Branch Manager John Hammond, two main reasons prompted the move: (1) Increasing demands for General Controls' products; (2) Better service to customers.

The Architects Building, sometimes called the "Construction Center," is conveniently located. This famous Park Avenue address houses engineers and architects of national repute, as well as manufacturers representatives in many lines closely allied to that of General Controls.

JOHN HAMMOND

"In our sales and service offices on the sixth floor," says Mr. Hammond, "we have complete facilities for doing a real sales engineering and counseling job for our users. There are practical working displays showing the many uses of our controls in various industries. Customers' needs can be filled quickly from a large, amply-filled stockroom. On the ground floor we have a 7-ft. high display with 'General Controls' in lucite letters that can be seen from Park Avenue."

John Hammond has had nine years of experience in the Controls business on the Atlantic seaboard. As salesman, sales engineer, and branch manager, he has installed control systems from Richmond to Boston. At war's start, he took an active part in General Controls Co.'s pioneer work in the application of big automatic shut-off valves to aircraft uses.

In line with General Controls' expansion program, the Cleveland Branch also moved into new quarters recently at 3224 Euclid Avenue, Cleveland, Ohio, with Branch Manager L. E. ("Rusty") Wetzell in charge.

MARSH APPOINTS GAISFORD

THE JAS. P. MARSH CORPORATION of Chicago recently announced the appointment of R. S. Gaisford as manager of the Marsh Export Department located at 155 E. 44th St., New York City. During the many years in which Mr. Gaisford has been Eastern Division Manager of the Jas P. Marsh organization he has developed a wide circle of friends. The growing volume of export business and the added emphasis placed on the export market for Marsh Gauges, Dial Thermometers and Heating Specialties suggested broader plans, which Mr. Gaisford is well qualified to execute.

MONTGOMERY NEW LYNCH ZONE MANAGER

THE appointment of Earl W. Montgomery as manager of Zone 4—covering the Southwestern States with headquarters in Dallas, has been announced by R. L. Sears, manager of the Lynch Manufacturing Corp., Defiance, Ohio. Mr. Montgomery comes with the Lynch Manufacturing Corporation after eight years of successful experience in specialty distribution through automotive and specialty jobbers. During this time he progressed from missionary man to zone manager for one of the Nation's leading manufacturers. His knowledge and experience fit him well for this new assignment.

EARL W. MONTGOMERY

Classified Ads

Rate: Two Dollars for fifty words or less. 30 cents for each additional ten words or less.

FOR SALE—Complete refrigeration business, including fully equipped shop, in thriving western city. Address Box AU-6, Refrigeration Service Engineer, 433 N. Waller Ave., Chicago 44, Ill.

HELP WANTED—Unusual opportunity for Refrigeration Draftsmen and Engineers. Large, firmly established manufacturing company at Chicago, Illinois. Please outline your education and experience to us in your first letter; also salary expected. Those engaged in defense work cannot be considered. Address Box Sp-10, Refrigeration Service Engineer, 433 N. Waller Ave., Chicago, Illinois.

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